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An index to the eighty-sixth volume of The Railway Gazette *covering the issues from January 3 to June 27, 1947, has been prepared and is now available free of charge on application to the publisher*

A Unanimous Decision at the Paris Conference

PERHAPS the most promising result of the final plenary session of the 16-nation conference at Paris on the Marshall aid for Europe programme was the unanimous adoption of the report, which has been forwarded to Washington. The gravity of the situation in Europe is shown by the fact that its needs over the next four years are estimated at no less than £5,610,000,000, and an additional amount of £750,000,000 is estimated as required to create internal financial stability in certain countries. Plans for European self-help mentioned in the report include the restoration of pre-war grain production; the raising of coal output by 30 million tons above pre-war level; increase in electricity output by two-thirds above pre-war; and raising steel output by 20 per cent. above pre-war. The report states that in the United Kingdom the expansion of 50 million tons of coal a year planned between 1947 and 1951 is based on an increase in trained manpower, intensive use of modern mechanised methods and capital investments, including 20 new sinkings. It is hoped to resume export to other participating countries after April, 1948, the quantity rising from 6,000,000 tons next year to 29,000,000 tons in 1951. Although the first element of the recovery programme must be to increase European production, the plans cannot be realised by European action alone; the targets that have been set are dependent on American aid and on conditions of world trade beyond the control of the European countries.

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The Argentine Railway Negotiations

After a good deal of disquiet arising from contradictory rumours and reports from Buenos Aires as to the progress of the negotiations for the final settlement of the purchase by the Argentine State of the British-owned railway companies, matters seem to have taken a more favourable turn. At one time it was feared that the discussions were likely to be held up because of circumstances arising out of Great Britain's decision to suspend the convertibility of sterling. Towards the end of last week a British Embassy spokesman at Buenos Aires told a Press conference that the railway negotiations presented no difficulties now, and were just awaiting the fulfilment of certain formalities. This statement was issued after a talk between Sir Reginald Leeper, the British Ambassador to the Argentine, and Dr. Juan Bramuglia, the Argentine Foreign Minister. Sir Montague Eddy also denied a report from London, saying that he was not satisfied with the progress of the Argentine rail talks, and said that everything was going satisfactorily.

* * * *

Winter Fuel Plans for Industry

The Ministry of Fuel & Power, according to Mr. Hugh Gaitskell, Parliamentary Secretary to the Ministry, has worked out a "fairly complete" plan for winter fuel allocation, and before November 1 every industrialist is to be told what coal he may reasonably expect throughout the winter. On the other hand, Mr. Gaitskell, who was addressing members of the Yorkshire Region Engineering Industries Association at Leeds, said that the allocation might not be as large as the industrialist wanted, but he believed that even bad news should be given as early as possible. Staggering of local industry loads would help most to keep consumption of electricity below the maximum, but he could give no undertaking that weather conditions might not force some load shedding. Stocks held by power stations were stated to be more than double what they were in the corresponding period last year—3,844,000 tons compared with 1,888,400 tons. Peak demand had increased more rapidly than the available generating capacity, and compared with last winter the shortage of generating capacity was worse.

* * * *

Steel Allocations to Industry

Sir Stafford Cripps, President of the Board of Trade, told a meeting in Edinburgh recently that to find the additional 250,000 tons of steel a quarter that would be required for the increased export programme, it would be necessary to reduce the use of steel in capital construction. He also said that the allocation scheme would have to be worked much better than it had been recently. The Government was having an examination of the steel control methods carried out with

both sides of industry to see what improvements could be made, and to ensure that steel went first where it was most required. It is believed that this investigation into the steel control scheme is not likely to mean the scrapping of the present priority system under which six groups of manufacturers, including electricity generating plant, coal-mining machinery, freight locomotives, and railway wagons for coal transport have whatever supplies they require "within reason." By stepping-up output from the annual rate of 12·5 million tons to 14 million tons, it is hoped that the extra 1·5 million tons will be sufficient to allow the exporting industries to have the steel necessary to enable them to reach the targets set by the Government.

* * * *

Steel Industries Coal to Oil Conversions

According to an article in the August *Statistical Bulletin* of the British Iron & Steel Federation, the coal to oil conversion programme of the steel industry eventually will account for 1,300,000 tons out of the planned industrial consumption of 6,000,000 tons of fuel a year, which is designed to save 10,000,000 tons of coal a year. As in other industries, however, the work of conversion has been hampered by shortages of materials and equipment, but more rapid progress is expected from now onwards, and by the end of this year consumption of fuel oil should be running at an annual rate of one million tons. There are various inescapable technical limitations on the use of liquid fuel in the making of iron and steel. It is not feasible to use oil instead of coke in the blast furnaces, which account for almost the whole of the industry's coal consumption. Many steel furnaces are fuelled by blast-furnace and coke-oven gas for which there may be no other useful outlet. Oil is, therefore, being used mainly, though not exclusively, in open-hearth steel furnaces previously fired by producer gas. A substantial saving of coal, in the ratio of approximately 1·7 tons of coal for each ton of oil, is thus effected.

* * * *

Home Railway Traffics

Home railway traffic receipts for the four weeks ended September 7 showed a decline of £1,341,000 at £29,380,000. The downward trend in passenger and merchandise receipts was continued, with falls of £659,000 and £722,000 respectively. Coal and coke receipts again showed an improvement, this time of £40,000, as compared with the corresponding period of 1946. Below is given a table showing the increases and decreases compared with last year for the four weeks, and also for the 36 weeks of the current year:—

FOUR WEEKS ENDED SEPTEMBER 7, 1947

	1947	1946	+ or −	Per cent. + or −
	£000	£000	£000	
Passenger	17,749	18,408	− 659	− 3·6
Merchandise	7,485	8,207	− 722	− 8·8
Coal and coke	4,146	4,106	+ 40	+ 1·0
Total	29,380	30,721	−1,341	− 4·4

AGGREGATE FOR 36 WEEKS OF THE YEAR

	1947	1946	+ or −	Per cent. + or −
	£000	£000	£000	
Passenger	135,591	143,421	− 7,830	− 5·5
Merchandise	62,471	72,203	− 9,732	−13·5
Coal and coke	36,514	33,804	+ 2,710	+ 8·0
Total	234,576	249,428	−14,852	− 6·0

For the first nine months of the current year the decline in gross traffic receipts is £14,852,000, or some 6 per cent., notwithstanding the increased rates and charges which have occurred during the intervening period. Passenger revenue is less by £7,830,000, and merchandise traffic has yielded £9,732,000 less. Revenue from coal and coke carriage, on the other hand, is higher by £2,710,000.

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Transport Costs in Relation to the Location of Industry

At the present time many industrialists are considering the desirability of transferring their works, or a portion of their existing establishments, from congested areas to districts which offer ample space for expansion. When a trader is weighing up the advantages of particular sites in different localities, transport costs often will sway his decision. On another page in this issue, an article from a correspondent discusses some of the principal factors which have to be taken into account. Obviously, our correspondent's views are open to debate on many points. His subject, however, will become increasingly important when the British Transport Commission takes up the task of framing a system of rates and charges to be levied by the various types of carriers. The article may serve to draw attention to a complex question, and we shall welcome letters from readers on such matters as exceptional rail rates, agreed charges, road haulage costs, and the incidence of transport costs on the prices of commodities.

* * * *

G.W.R. Plans for the Future

Elsewhere in this issue we review a newly-published book by Mr. Christian Barman, entitled "Next Station," in which the author describes the G.W.R. plans for post-war development. The text was written before the passing of the Transport Bill, but many of the schemes dealt with are already under way, and there will be general agreement as to the desirability of the remainder being proceeded with as the changing circumstances of railway organisation permit. Of some of the major projects, such as new coaching stock, gas-turbine propulsion, and oil fuel for steam locomotives, the public is aware, but the book fills in many details to which the general Press in these days cannot do justice by reason of space limitations; and it describes, with diagrams, the principles of zonal goods organisation. In view of criticism that has been made of accommodation on railway premises, the chapter on stations is of particular interest, and will dispel the apparently widespread impression that the railways are indifferent to the shortcomings of existing buildings. Among the schemes described are new combined stations for Oxford and Banbury, to bring the services of all lines serving the towns under one roof, which show clearly that private ownership of railways has not meant that the convenience of passengers has been overlooked in recent years.

* * * *

Winter Train Services

Working under the necessity of reducing services by 10 per cent. compared with those announced last October, changes in facilities offered by the main-line railways this winter in comparison with their summer schedules consist mainly of restored seat reservations. The G.W.R. plans in this respect were referred to in our September 12 issue, and in a news paragraph last week we recorded the increase from 13 trains with reserved seats a year ago to 25 as from October 6 which will be effected on the L.N.E.R. The L.M.S.R. is restoring seat reservations on 21 long-distance trains to and from Euston, which will be additional to the similar facilities on the Irish boat trains which have remained in being during the summer. Travellers by specified services to the principal resorts served by the Southern Railway will be able to reserve seats, nine West of England trains being included. The "Devon Belle" will not run after October 27, and Continental routes will lose the 8 a.m. Victoria to Paris *via* Folkestone, and the 3 p.m. Victoria to Ostend, with the corresponding return services. As reported last week, the L.N.E.R. timetables will be brightened by naming the 7.40 a.m. (present 7.38 a.m.) Sheffield to Marylebone and the 6.15 p.m. return train the "Master Cutler," which will be the first official naming of a G.C. London main-line service.

* * * *

L.N.E.R. Sheffield-Marylebone Service

Hitherto, the only officially named L.N.E.R. train between London and Sheffield has been the short-lived "Sheffield Pullman," which ran to and from Kings Cross in 1924-25 (also serving Manchester in its later months). On the G.C. Section the 3.25 p.m. from Marylebone non-stop to Sheffield became known as the "Sheffield Special" when its time was reduced to 2 hr. 50 min. in 1905, but the name did not appear in the timetables or on the carriage roof boards. Particular interest attaches, therefore, to the naming of the present breakfast car train from Sheffield, and the return service at 6.15 p.m. from Marylebone, as the "Master Cutler," from October 6. These trains give the traveller from Sheffield the best part of a day for business in London, and at the moment there is no corresponding facility for return journeys from Marylebone to the North. Even before the war there was a similar deficiency.

there being no non-stop run to Leicester before 3.20 p.m. In the current timetables the 3.20 p.m. retains only its departure time as a reflection of the once long-established afternoon fast train from Marylebone. There was, therefore, little choice of a suitable G.C. Section service to name apart from the one selected, but there are at least grounds for hope that now the naming habit has been formed on this route, other trains worthy of a title may in due course be provided.

* * * *

London Transport Public Relations

The traditional good humour of Londoners survived the stress of war, but emerged a little frayed into the pale and uncertain dawn of peace. The London Passenger Transport Board, therefore, took an early opportunity of launching a campaign with the title "Courtesy Aids Service," which was directed equally to the staff of the Board and the public, and was aimed at promoting understanding between the two. Mr. J. H. Brebner, Chief Public Relations & Publicity Officer of the Board, has described in his presidential address to the Regent Advertising Club the satisfactory result of the campaign. Soon after it was launched, the Board began to receive letters from the public expressing gratitude for helpfulness by London Transport staff, and more recently the staff of the Board has been invited to report outstanding acts of courtesy performed by passengers. Letters of appreciation have been sent to these passengers where they can be identified. Mr. Brebner said that many links of friendship had been formed in this way with the public, and every week the Board received some 30 letters from travellers praising individual members of the staff, or other aspects of the Board's service.

* * * *

The New Prime Mover

Addressing visitors to the Whetstone branch of the National Gas Turbine Establishment on September 17, Mr. Arthur Woodburn, Joint-Parliamentary Secretary, Ministry of Supply, said that the development of the gas turbine was of very immediate importance in the search for sources of power, since the harnessing of the atom still must be regarded as 10 years away. Views expressed by representatives of the establishment on this occasion suggested a wide use of the gas turbine for land, sea, and air traction in course of time, but at the moment the work most in evidence when visiting Whetstone is concerned with aircraft power units. It was explained, however, that three-quarters of the activities of the establishment are basic research, which are applicable equally to all forms of gas turbines. Mr. Woodburn made the point that, although the invention of the gas turbine is associated in the public mind with individuals, it proceeds, in fact, from genius and hard work in the proportions of about 5 per cent. of the former, and 95 per cent. of the latter. The hard work, he said, was supplied by the National Gas Turbine Establishment, and already the pioneer turbine had found a place in the museum. This is a severely rational view, but it is usually the 5 per cent. of genius which remains in the memory of the public, and Stephenson's *Rocket* must be a familiar name to millions who would be hard put to it to quote a single locomotive class, or chief mechanical engineer, from the many who have followed him.

* * * *

A.T.C. in India

The advisability of adopting some form of automatic train control has been under consideration by the Indian railway authorities for some time, largely, we believe, as a result of accidents caused by failing to observe adverse outer signals at "B" Class stations; or starting irregularly into an occupied single-line block section. In 1946 a committee was set up to deal with the problem for the whole country, with the General Manager of the B.B. & C.I.R. as Chairman, and certain signal engineers and transport officers as members, meeting in Bombay. It was decided to make trials on the B.B. & C.I.R. lines with the Hudd intermittent inductive system, now in use on the L.M.S.R. London-Southend line, and also with an adaptation of the G.W.R. ramp contact system, the ramp being located, however, at the side of the track, as conditions make it impossible to use a central one. Coloured visual cab signals are being used. On the G.I.P.R. the General Railway Signal Company's intermittent inductive apparatus is to be tried. The progress of the various experiments will be watched with considerable interest.

* * * *

Rail Damage by Slipping Locomotives

The damaging effect on rails of slipping locomotive driving wheels, and possible palliative treatments, have been the subject recently of study and experiment by the University of Illinois, including the anchorage of a 2-8-2 locomotive on a test track and the deliberate slipping of its driving wheels for 5 sec. periods over selected rails. The effect is to heat the rail steel to above the quenching temperature, after which the rapid cooling of the affected metal by conduction produces the extreme hardness of a martensitic steel structure on the rail-head, readily visible as what is called an "engine burn." Moreover, the martensitic transformation creates minute cracks in the steel, which reduce its resistance to fatigue and eventually may develop to such an extent as to cause failure. Experiments were made in the welding up of rail-heads affected in this way. An essential was that all the martensitic or burned metal should first be removed by grinding, and also any metal showing cracks immediately outside the burned area, where some of the greatest stresses are developed at the time of the slipping. Although the data available as yet are small, the results indicate that engine-burned rails which have been welded up show an appreciable advantage in subsequent service over those which have been left in their damaged condition. The main necessity would seem to be some reconsideration of locomotive adhesion factors to reduce the slipping itself to a minimum.

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Colonial Railways in New Development Plans

THE Government is showing an increasing awareness of the development potentialities of the Colonies, and in recent months has taken steps to implement large-scale plans in various of Great Britain's more important overseas territories. We have already referred to the plans for the intensive development of the groundnut industry in Nigeria, which is one of the best known, but by no means the only project which is being pressed forward.

In view of the grave economic state of the world, and of the urgent need for foodstuffs and raw materials which the Colonies can supply, it is recognised that great efforts must be made to develop their resources and increase production. That is the purpose of the recently-formed Development Corporation, of the 10-year plans which have been made by the Colonial Governments, of the groundnut and similar schemes, and of all the efforts being made to encourage and extend production, research, marketing, co-operation and so forth in many fields.

Basically, however, the success of the efforts which are made to stimulate production in the Colonial Empire must depend, as indeed they have depended in all other parts of the world, on the provision of adequate and efficient transport. This includes not only railway, road, and in some cases, air systems within the territory concerned, but also adequate shipping and shipping facilities at the ports nearest to production for transport to the outside world.

The increasing development of the Colonies will throw a new and heavy strain on the local railways and their administrations. New schemes of railway development have to be assured priority if the overall plan is to achieve success. In most cases the Colonial railways gained valuable experience during the war in movement of traffics of a kind and volume which were quite new to them. That experience will be of value in the prosecution of present plans, but on the other side of the account must be placed the abnormal wear and tear which has resulted from war traffic operations, and in many cases the interruption which has occurred in the logical development of the systems. At the present time, many Colonial railways are making do with locomotive power and rolling stock which is of a standard far below that necessary for efficient working; in some cases locomotive stock is now so mixed that any policy of standardisation is recognised as being a very long-term project in present circumstances.

Mr. Creech Jones, Secretary of State for the Colonies, is

summoning to discussions in London next November, the Governors and Governors-Designate, of the African Territories in preparation for a conference to be held next year of representatives of the West, East, and Central African Territories, with whose affairs the Colonial Office is concerned. Would it not be desirable also for a conference to be held periodically of the General Managers of the Colonial railways? Such a meeting would provide an opportunity for the discussion of matters of mutual interest, and the exploration of methods of approach to common problems. The exchange of views which would take place would be of value, and an opportunity would be afforded the principal executives of the systems of meeting not only formally around the conference table, but also informally at other times during the period of the conference, when such matters as staff transfers and the like could be raised, and often assistance given in the selection of suitable personnel for a particular job.

* * * *

Re-organising the Government Machine

THE increasingly widely held view by many authoritative critics of the Civil Service that there should be a review at the highest level of the organisation of Government administration, finds support in the fifth report* of the House of Commons Select Committee on Estimates, which has just been published. The report deals with organisation and methods, and their effect on the staffing of Government departments, and recommends reconsideration of the whole pattern of the Government machine in the light of modern conditions. It points out that if industry is to be urged to become more efficient, it seems that the Government should put its own administration in order. In times such as the present, when the activities of Government are altering rapidly, it has been necessary to adjust administration to meet the new requirements. What was needed, states the report, was not a sporadic shifting of duties, but a modification of the present pattern of the administrative machine. The part played by the Organisation & Methods Division of the Treasury, which draws on outside experience in office management and organisation, has the assistance of an advisory panel of business men, and has become a valuable instrument in this re-designing, should be that of planning the structure of machinery of Government, rather than that of attending to plumbing and maintenance.

The Select Committee finds that insufficient thought has been given to adapting the machinery of Government to its new tasks, and the administration has been strained almost to breaking point. The extent of the Government's interest in industry has been permanently widened, and the Civil Service has been required increasingly to take a more direct part in the economic life of the country. New and great responsibilities have been placed on it, more particularly in relation to the nationalised industries. Pointing out that an increase in staff has been inevitable, the Committee draws attention to the danger that the major departments of State may become too large and cumbrous to work rapidly and efficiently as administrative units.

The Organisation & Methods Division is the training ground for membership of similar divisions in other departments, and it provides an advisory and investigating service, which has achieved some successes. It was responsible, for example, for the suggestion that passports should be issued through Labour Exchanges, and this step, when adopted, not only lessened the time taken in obtaining a passport, but also reduced the staff required from 1,100 to 700. It is also stated to have reduced the numbers and complexities of Government forms.

The problem which has to be faced is not confined to questions of establishments and machinery for inter-departmental liaison. A pattern has to be worked out by which the new national boards, and other Governmental bodies, which, nevertheless, have responsibilities to the State, could be incorporated in, or satisfactorily linked to, the administrative machine. It seems clear indeed that the chief difficulties of the working of the Civil Service require somewhat more than a planned review by the Organisation & Methods Division and a "reconsideration of the whole pattern of the Government machine in the light of modern conditions might well suggest a reorganisation that would increase rapidity and efficiency, and which the ever-growing volume of work has discharged." As *The Times*, in an editorial article dealing with the report commented, it might also lead to a clearer perception and definition of the functions which can be carried out in the centre with equity, convenience, and speed, and a corresponding limitation of the responsibilities that it is proper to place on the Civil Service in any extension of public ownership.

* Fifth Report from the Select Committee on Estimates—Organisation and Methods and its Effect on the Staffing of Government Departments. H.M. Stationery Office. Price 4s.

* * * *

Men and Mechanism: The American Scene

AMERICAN practice in construction and maintenance of permanent way becomes of even greater interest to British engineers now that flat-bottom rail is being used increasingly in this country and under conditions when shortage of experienced track staff calls imperatively for mechanisation to save labour. A recent account* of practices on the Pennsylvania Railroad and some other railways in the United States serves to emphasise the fundamental identity of the problems on both sides of the water which underlies superficial differences of approach. Written concisely from the practical viewpoint of long experience in track work, it covers broadly the whole field of track, formation, and earthwork maintenance.

It is interesting, and in accord with British ideas, to find that on page 1 of Chapter I thorough drainage of the surface and sub-bed is stressed as the essential feature for all kinds of road, and details are later given of the various systems and cross-sections in use and of means of stabilising wet formations by blanketing, and by sub-ballast slabs, mats, and piles. A brief account of grouting with cement and sand plus bitumen emulsion also appears, and is stated to give relief for long periods, if not permanently. A full chapter is devoted to vegetation for banks, and it is stated that the practice of turfing, soiling, and sowing or planting has been extended recently to many lines with marked reduction in costs for ditching and repairing slips. The discussion on types of vegetation covers many alternatives to grass, including woodbine, perpetual briar roses, and dwarf trees for bank holding and for snow breaks. The use of street dirt as compost, strongly recommended, is a reminder that America still has much horse traffic.

It is, however, on the subject of machines that the greatest interest for British readers will probably be stimulated because of what are truly described as "epochal changes in the conduct of maintenance of way work" resulting from their widespread use. The objectives defined as "a higher standard for the finished product," greater speed in performance, minimum use of labour, and minimum interference with traffic, are such as to appeal strongly to British engineers, and, although our conditions are less favourable to the use of on or off-track appliances, there is food for thought as to the possibility of their wider application particularly when, as described, certain of them are of multi-purpose utility. As an instance of this, the spreader-ditcher is described as highly efficient also for clearing snow and ice from tracks. The problems of track inspection and maintenance are fully described, as well as the operations of renewal, and a special section discusses the means adopted of overcoming serious arrears of maintenance arising from the acute wartime manpower crisis.

Dealing with New Works, an account is given of several large alterations and extensions, and an interesting economic case is made for expediting the raising of speed restrictions on newly-constructed lines by the employment of unusually large labour forces. A temporary allocation of 150 men to the route-mile on a new line enabled an initial speed limit of 30 m.p.h. to be raised to 50 m.p.h. in 36 hours and to 70 m.p.h. in one month, notwithstanding a settlement under traffic of 18 in. in 6 months on a bank 22 ft. high where there were a number of bridges, forming high spots.

Viewed as a whole, the description of American practices does not appear to indicate any appreciably higher level of technical development in the United States than in Great Britain. It is of value mostly for a breadth and freshness of outlook reflecting, perhaps, the scope of the American scene and the youth of a country where to be new or different still carries the inalienable right to be given a trial.

* "Roadway and Track." By Walter F. Rench. Third Edition. New York: Simmonds-Boardman Publishing Company, 30, Church Street. 9 in. × 6 in. 350 pp. Price $5

Transport Costs in Relation to the Location of Industry

(From a Correspondent)

A PRIME requisite for the successful establishment and maintenance of an industry is that it be located in an area where cheap, efficient transport facilities are available, connecting the manufacturing unit with markets for its products. Transport deals with the conveyance of goods from the producer of raw materials to the manufacturer of finished goods from the manufacturer to the wholesaler, from the latter to the retailer, and thence from the latter to the consumer. Transport can be carried on by:—

(1) Ocean Routes
(2) Coastal Sea Routes
(3) Rivers and Canals
(4) Railways
(5) Motor Vehicles by road
(6) Airways

According to circumstances, these various means of transport will be used independently or in combination.

The study of the localisation of industries leads to the following conclusions: First, the tendency of certain industries to be carried on in the district of their origin, even though the advantages which gave rise to them have disappeared, produces industrial inertia. This inertia is due (*a*) to momentum acquired; (*b*) hereditary skill passed on from generation to generation; (*c*) the amount of capital invested which cannot be transferred to form new assets without subsidised financial aid; (*d*) improved methods of transport by which raw materials are taken to the industrial centre; (*e*) inventions which revolutionise the industry.

Second, having regard to the above changes, it is no longer necessary to build factories in areas already overcrowded so as to attract labour. It has been proved that factories can be built and operated with economic success in healthy country districts, such as Bourneville, Port Sunlight, Newhouse, and so on. This change has been rendered possible by improved methods of transport, especially the invention of the internal-combustion engine.

In implementing the national policy of full employment involving the control and the redistribution of industry, the incidence on manufacturers' transport costs due to a transfer of the whole or a portion of a firm's production by diverting it to a new area has to be considered in the following aspects:—

(*a*) The source of the raw materials required in the manufacture of the finished products;

(*b*) The situation of the market for that product.

Regarding (*a*) above, the raw materials, say, for a paint manufacturing firm will emerge from various sources overseas and be shipped to a port in Great Britain convenient to the paint factory. There is no differential in the cost of a ship rate to any particular port, as the rates from overseas to any home port are identical. But the distance of the manufacturing unit from the port of entry will have a bearing on production costs, and in this connection the reduced railway rates for a heavy flow of any one commodity (mentioned later) will have an important bearing on mitigating additional costs due to location.

As to (*b*) above, any re-location of an industry must not involve a manufacturer in double transport costs; for instance, it would be uneconomic for a London firm making metal containers for packers in London to be established at, say, Rochester, involving transport of the finished empty containers from Rochester to London, unless there was some compensating economy resulting from such a location. In any case, such a move would be uneconomical from a transport standpoint, involving the haulage of a large number of voids.

Another aspect to be considered in any proposal to divide a firm's production to avoid expansion on an existing location is the interruption of the sequence of the assembly lines in the existing factory by an important component being fabricated elsewhere.

In order to avoid delay in assembly, it would be necessary to have an adequate storage capacity for the component in question at the parent factory. Handling, packing, and transport costs of the component would have to be added to the cost of the product in all such proposals.

Railway Transport

The present system of standard freight charges on British railways is based on a combination of distance and the ability of each class of goods in the extensive goods classification to bear the ordained charges. Under this system of charging by classification high class value commodities, such as leather goods and machinery, bear a larger proportion of overhead expenses compared with the low class value commodities such as coal, pig-iron and other bulk raw materials. The first six classes of the goods classification cover all low grade heavy and bulky materials; the remaining 15 classes from 7 to 21 upwards are concerned with more valuable and vulnerable merchandise. From the railway companies' standpoint this worked well until the 1920s, but from that time the road hauliers successfully undercut the railways for merchandise which could stand a higher rate than that for the heavier goods.

In face of this competitor, any attempt by the railways to charge their basic rates led to the transfer of the traffic to the road hauliers with the result that the railways resorted in self-protection to the extensive use of a system of exceptional rates involving reductions up to 60 per cent. of the basic rates, where the flow of any particular traffic between any two points justified such a reduction. An example of the benefits accruing to the industrialists by these reductions is shown by the following table of rates between Birmingham and Liverpool:—

	Traffic	Standard rate per ton	Exceptional rate	Reduction per cent.
		s. d.	s. d.	
Class 6	Sulphur	16 11	14 0	17
,, 7	Fuel and gas oil	20 11	15 1	28
,, 8	Grain and oil cake	22 9	16 6	42
,, 9	Lead scrap	25 5	19 5	32
,, 10	Charcoal, animal (bone black) packed	27 7	17 11	40
,, 11	Sugar	35 9	16 2	53
,, 12	Machinery	38 3	21 8	44
,, 13	Nickel copper alloy	40 5	24 3	40
,, 14	Fruit and vegetables	44 2	23 0	49
,, 15	Hemp	47 4	19 8	60
,, 16	Vices (iron and steel)	48 7	28 0	43
,, 18	Motor cycles, bicycles and accessories	56 6	24 3	57

Whether such favourable railway rates as those quoted above will be perpetuated by the British Transport Commission is problematical, as in the Transport Act it is laid down that the rates and charges shall be fixed at such a level as will enable the Commission to meet all expenses and capital charges.

Under the present system, once fixed, these exceptional rates are available to all senders of goods and they cannot be removed from the rate books of the companies except by application to the Railway Rates Tribunal. The exceptional rates bring railway charges into favourable relation with the current comparative road-haulage rates as shown in the diagram, which gives the exceptional railway rates and road transport rates for machinery to various parts of the country. An important aspect of exceptional railway rates affects the direction of the new industries to the Development Areas, for the exceptional rates operating in these areas due to the large volume of traffic passing to and from them in their prosperous days are still available for any new industries which are established there. This is particularly evident from the diagram on page 342 by comparing, say, South Wales with the South-East of England.

The incidence of transport costs on the cost of an individual product is almost negligible, and in the matter of foodstuffs railway charges are so small that even if the food were carried free, there is no coin small enough to allow retail tradesmen to make a proportionate reduction in their prices. Total transport cost on factory output is a substantial consideration.

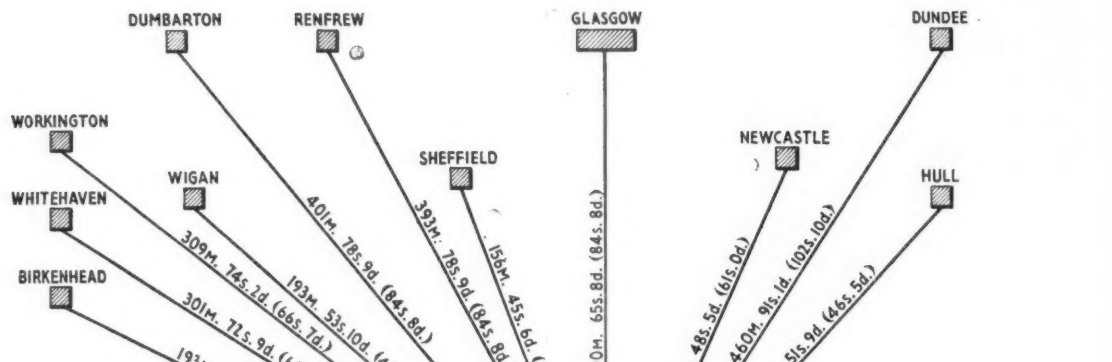
Agreed Charges

The "Agreed Charges" system, which was introduced 13 years ago under powers conferred on the companies by Section 37 of the Road & Rail Traffic Act, 1933, enables goods to be conveyed at a fixed charge per ton or per package; it is of great advantage because it eliminates an amount of clerical work. The system covers all commodities, and the agreed charges are very moderate as they were designed to recapture traffic from road transport companies. A striking example of low charge is that affecting whisky; a case containing 12 bottles of whisky is conveyed any distance, including collec-

MACHINERY (PACKED)

RAILWAY RATES (STATION TO STATION) THUS: 45s. 6d.

ROAD HAULAGE RATES THUS: (14s.7d.)



The railway rate shown in the above diagram is the charge from terminal to terminal. About 10s. *a ton must be added to cover cartage to and from terminals. The road haulage rates include door-to-door conveyance*

RAILWAY AND ROAD TRANSPORT RATES (PER TON, STATION TO STATION) FOR CONVEYANCE OF COMMODITIES COMPRISED IN THE CLASSES INDICATED BETWEEN LONDON AND TOWNS LISTED

Miles from London	—	10	11	12	13	14	15	16	17	18	19	20	Exceptional rates: List A (castings)	List B (chemical)	List C (drapery)	List D (drapery)	List P (machinery)	Road transport rate per ton applicable to all classes
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
460	Dundee	79 1	92 1	100 6	108 10	128 10	136 0	141 6	154 5	164 7	205 1	248 8			145 8		91 1	102 10
390	Glasgow	69 6	80 11	88 4	95 6	112 5	118 10	123 5	134 11	143 7	178 4	215 9	60 9		149 6		65 8	84 8
399	Renfrew	70 9	82 5	89 11	97 2	114 6	121 2	137 5	137 5	146 3	181 9	219 11			150 0		78 9	84 8
401	Dumbarton	70 11	82 9	90 3	97 7	115 0	121 7	137 11	137 11	146 9	182 6	220 10					78 9	84 8
267	Newcastle	52 9	61 6	66 9	72 0	83 5	88 8	91 11	100 6	106 6	131 2	157 10	42 5	36 8		95 4	48 5	61 0
156	Sheffield	37 6	43 10	47 5	50 9	57 5	61 4	63 4	69 7	73 2	88 9	105 8	37 1		79 7		45 0	40 8
181	Hull	40 10	47 10	51 9	55 5	63 3	67 6	69 10	76 7	80 8	98 3	117 5					51 9	46 5
309	Workington	58 4	68 2	74 2	80 0	93 4	99 0	102 9	112 4	119 2	147 4	177 7					74 2	66 7
301	Whitehaven	57 4	66 9	72 9	78 5	91 6	97 0	100 8	110 0	116 9	144 2	118 4					72 9	66 7
193	Wigan	42 6	49 8	53 10	57 10	66 1	70 5	72 10	79 11	84 3	102 11	123 0					53 10	48 4
183	Wrexham	41 2	48 2	52 1	55 10	63 9	67 11	70 4	77 1	81 3	99 1	118 4					52 1	46 5
193	Birkenhead	42 6	49 8	53 10	57 10	66 1	70 5	72 10	79 11	84 3	102 11	123 0			99 6	73 0	43 11	48 4
117	Bristol	32 1	37 7	40 6	43 3	48 3	51 8	53 4	58 9	61 4	73 9	87 4		27 10	66 4	31 9	28 10	33 1
152	Cardiff	36 11	43 3	46 8	49 11	56 6	60 4	62 4	68 5	71 11	87 2	103 9			77 7	64 9	37 2	40 8
193	Swansea	42 6	49 8	53 10	57 10	66 1	70 5	72 10	79 11	84 3	102 11	123 0				75 9	37 2	48 8
110	Birmingham	31 2	36 7	39 3	41 11	46 7	50 0	51 7	56 9	59 3	71 2	84 0	29 9	22 0		36 4	29 4	31 2
													o.r.			o.r.		
25	Rochester	13 5	16 6	18 4	19 1	20 6	21 8	22 4	24 6	25 6	29 11	34 6	10 8	10 8	29 11	25 6	18 4	14 7
70	Ramsgate	23 9	28 0	30 4	32 1	35 3	37 9	38 9	43 0	44 10	53 4	62 7	19 10	19 10	53 4	44 10	30 4	23 7
49	Brighton	19 6	23 3	25 3	26 7	28 10	30 9	31 7	35 3	36 8	43 5	50 9	15 5	15 5	43 5	36 8	25 3	19 8
54	Newhaven	20 6	24 5	26 6	27 11	30 4	32 5	33 4	37 1	38 8	45 10	53 8	16 6	16 6	45 10	38 8	26 6	20 7
58	Eastbourne	21 4	25 4	27 2	28 8	31 3	33 5	34 5	38 3	39 10	47 4	55 10	17 4	17 4	47 4	39 10	27 2	21 6
69	Dover	23 7	27 10	30 1	31 11	34 11	37 5	38 5	42 7	44 5	52 10	62 0	19 5	19 5	52 10	44 5	30 1	23 7

N.B.—The commodities comprised in each class above are so numerous and varied that it is not practicable to list them. To obtain from these tables the applicable rate for any particular commodity it is necessary to consult the alphabetical index in the Railway Clearing House General Classification for Merchandise published by that body. price 2s. 6d.

tion and delivery by the railway company, for 1s. 7½d., from which it is seen that the effect of transport costs on the retail selling price is not noticeable.

The increasing use made of this method of charging is indicated in the 25th annual report of the Railway Rates Tribunal, which states that during 1946 the number of applications filed for approval of agreed charges was 671, an increase of 36 over the figure for 1945. The Tribunal approved 663 agreed charges, of which 538 related to merchandise train traffic, 124 to passenger train traffic, and 1 to both classes of traffic. The majority of the new charges were agreed to enable the railway companies and traders to effect reductions in clerical work.

In the statistical returns published by the Ministry of Transport for 1946 the following figures for railway transport costs to senders are given:—

AVERAGE RECEIPTS PER TON

	1938	1945	1946
	s. d.	s. d.	s. d.
Merchandise (Classes 7-21)	18 2	28 4	27 9
Minerals and merchandise (Classes 1-6) ...	5 3	7 6	7 10
Coal class	3 11	6 10	7 0

AVERAGE RECEIPTS PER TON-MILE

	D	D	D
Merchandise (Classes 7-21)	1·939	2·695	2·657
Minerals and merchandise (Classes 1-6) ...	0·906	1·021	1·101
Coal class	0·978	1·300	1·362

Road Transport

No comparable ascertained transport costs for road haulage are available, but tonnage rates applicable to all merchandise which the road hauliers are prepared to convey are given in a list of rates published by the Road Haulage Association. The Association does not prescribe varying rates for different classes of merchandise as in the case of railway transport, but one rate is the common basis for all classes which it is prepared to handle.

Coastal Shipping Rates

There are several shipping companies operating freight services between the ports of Great Britain and Ireland. Where the rates are competitive with the railways, the rates on the principal goods carried by sea, in many cases by agreement with the railway companies, are fixed at approximately 10 per cent. below the railway rate. For example, the machinery rate by coastal vessel from Glasgow to London is 60s. per ton, which compares with the railway rate of 65s. 8d. per ton, and the basic haulage rate of 84s. 8d. per ton shown on the diagram between the same two points. There are also combined rail and coastal shipping rates in operation, as, for instance, from the West Riding of Yorkshire to the London Docks *via* Hull, under which arrangements the railway and shipping companies received their agreed proportion of the rates.

Ocean Rates

Ocean freight rates (other than tramp steamers) are fixed and controlled by geographical conferences, the membership of which consists of representatives of the steamship companies operating to the respective geographical areas which their services operate. There are, amongst others, the following conferences:—

The South African;
The Far East;
The Australian;
The New Zealand;
The North Atlantic.

All the principal shipping lines are tied to the conferences and competition between them within their geographical areas does not exist. Conference ocean freight rates, outwards and inwards, are identical for all United Kingdom ports and they are quoted as from or to U.K. port, so that no port has any particular advantage in respect of freight rates. The port dues and wharfage charges vary at different ports, but the advantage or disadvantage of one port with another has to be assessed by the trader.

Another system of carrying ocean freight in bulk is by tramp steamers chartered on behalf of traders by shipping agents on the Baltic Exchange. Under that arrangement the shipping agent obtains the most favourable quotation available at the time.

Airways

This is the latest means of transport to become available to the community. In the matter of speed it has an unassailable advantage over the former methods of movement of passengers and freight, but the operating costs are proportionately higher. The practical application of aeronautics to commerce has been enormously expedited by developments in aeroplane construction and flying technique obtained under war demands. From latest reports it appears that passenger services have not so far proved remunerative to the operators, but that on the other hand the conveyance of freight has brought a good return to the airlines. That more and more use will be made of this method of transport for higher grade and vulnerable commodities is a possibility which will have to be faced by the operators of the older forms of transport.

Publications Received

The Mistley, Thorpe & Walton Railway. By Thomas B. Peacock. Published by the author at 30, High Street, Halstead, Essex. 8½ in. × 5¾ in. 23 pp. Illustrated, Paper covers. Price 2s. 6d. This brochure is a good example of local research, and the preservation of local records, which we have no hesitation in recommending. It is unusual in providing what is probably the most detailed account of a railway which was never opened that has yet been published as a separate work. The line was built in part, and the remains are well illustrated. Moreover, it was not unimportant locally in its relationship to the eventual railway approach to Frinton and Walton.

Motor Control Gear: Short Delivery Standards.—We have received from Brookhirst Switchgear Limited, Chester, an illustrated catalogue, No. 27, dealing with a selection of motor control gear made on a batch-production basis. The list includes a large number of hand-operated and automatic starters, designed for motors ranging from 100 h.p. or more to fractional horsepower, and also a comprehensive range of accessories such as pushbuttons, tappet and limit switches, machine tool switches, etc. Batches of this equipment, covering a wide range of everyday requirements, are available at regular intervals, and in the majority of cases the batch provides for a quantity to pass into stock. A stock list, issued every month, shows the quantities in stock, and copies of this list, intended to be read in conjunction with the catalogue, can be obtained from Brookhirst Switchgear Limited on request.

Next Station. A Railway Plans for the Future. By Christian Barman. London, 1947: Published for the Great Western Railway, by George Allen & Unwin Limited, 40, Museum Street, W.C.1. 8¾ in. × 7 in. 113 pages. Illustrations in line and colour. Price 5s. net.—The news services of a railway company keep the public well informed of developments, but amid the many other claims on his attention, the newspaper reader may be excused for having difficulty in retaining a complete picture of all that a particular company is undertaking. This survey of G.W.R. post-war plans, therefore, would be valuable if for no other reason than that it collected and amplified information that has been released already. In fact, the book goes much further, and deals with many plans and policies in respect of locomotives, rolling stock, stations, and new lines which have not been published hitherto. There is ample evidence in these pages of the determination of the G.W.R. not only to fulfil but to anticipate public requirements, and it is a matter of historical interest that the text was written before the Transport Bill was introduced in the House of Commons. The book amply refutes those charges of indifference to travellers' needs on the part of the railways, which often are idly made and slavishly repeated by critics with an axe to grind. There are seven illustrations in colour and 11 in black and white, all reproduced from the work of well-known illustrators.

New Standards for Steel Tubes.—A British Standard Specification, No. 1387—1947, recently has been issued, dealing with new standards for screwed and socketed steel tubes and tubulars, mainly used for gas, water, and steam services. Under the new standards, details of which are given also in a brochure issued by Stewarts and Lloyds Limited, Brook House, Upper Brook Street, London, W.1, there will be made available a wider range of thicknesses than ever before, and at the same time a new lightweight quality tube which will result in a considerable saving in steel. This brochure has been illustrated by diagrams, and includes a very useful table of working pressures.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Third Class Sleeping Cars

Cambridge. August 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—More than once you have been good enough to let me point out that, at a time when passenger trains are overcrowded and unpunctual, our railways are designing coaches which will increase the deadweight hauled for each person carried. The latest scheme of this kind is the one described in your issues of July 11 and August 15 for building third class sleeping cars to carry 16 passengers apiece. There cannot be any commercial case for this expenditure.

You do not give the weight of the vehicles which the L.N.E.R. is building, but it is probably equivalent to about 2 tons per berth. In return for that accommodation a passenger from Kings Cross to Edinburgh will pay, on present charges, a fare of 69s. 4d., plus a supplement somewhere between 10s. and 28s., the charges in force for a third and first class sleeping berth respectively.

Let us assume that the supplement is fixed at 20s. The maximum revenue from a car between London and Edinburgh will be about £72. An ordinary third class coach, carrying 48 passengers, would produce about £168, and many of these coaches have been carrying 60 passengers at times.

Now the cost of running the sleeping car, with a special attendant, will be much greater than the working costs of the ordinary coach. Why should the unfortunate ordinary passenger, often charged full fare for standing room on long and weary journeys, subsidise the conveyance of a limited number of people in comparative luxury?

The fact is that sleeping car charges are not on a commercial basis. The first class charges have been settled by adding automatically each percentage increase in fares to the old supplement in force before the war, when the railways were anxious to attract traffic. Now that sleeping berths are being booked weeks, if not months, ahead, surely this is the time to fix new charges in relation to the cost of the service provided.

Yours faithfully,

EAST ANGLIAN

Yellow Light for Transport Commission

London, September 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I congratulate you most sincerely on your editorial under the above heading in your issue of September 19, but whether the powers-that-be and powers-to-be will take notice of the warning it contains is another matter. For the salvation of the railway industry one can only hope that they will.

As one of the P.R.Os to whom you refer, I can say honestly that I never have said or implied that grouping could be credited with any of the improvements you mention. In fact, on several occasions I have openly regretted the grouping, with its creation of at least two unwieldy companies difficult to manage, and its destruction of individuality and the personal touch. I agree with you that the greatest error of those responsible for the grouping was the murder of the Midland, which was easily the best "all-rounder" amongst the railways. But you could, perhaps, have mentioned one or two others which were not so very far behind the Midland, and which were completely dominated by stronger components of the groups into which they were forced—the Great Central, the Great Eastern, the Glasgow & South Western, and the Caledonian.

I do not, however, agree with your pronouncement that the Southern, efficient though it is in many ways, stands highest in public esteem. This may be so in London, where its electric suburban services compare so favourably with the steam-operated services of the other main-line railways, but there is quite a considerable number of people in the Midlands, the North, and Scotland, who swear by (as well as "at") the L.N.E.R. and L.M.S.R. The ultra-conservative Great Western also can muster plenty of advocates (and by that I mean users and not locomotive enthusiasts).

It certainly would seem from the British Transport Commission's remit that there is a very real danger that the pattern of the Coal Board may be followed by the railways. If this is indeed to be the case, then there is still time for the Railway Executive to avoid one cardinal error on the part of the Coal Board. It must set up its public relations organisation *now* and not months after the changeover.

And here I would express the pious hope that the Railway Executive will be allowed to recruit the whole of the personnel of such an organisation from the present experienced and well-tried (and often very tried) publicity departments of the railways, which contain *railwaymen* who are more concerned in interpreting the railways to the public than in putting across their own personalities.

In recent years, just a little too much faith has been placed in so-called public relations experts too fully endowed with slick tongues and the ability to fling a party, some of whom became public because they had relations!

Yours faithfully,

O TEMPORA! O MORES!

Train Service Improvements in France

58, Rue de Courcelles,
Paris 8e. September 9, 1947

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Accelerations on many lines are a feature of the 1947 Summer timetables of the S.N.C.F. (French National Railways Company). On certain lines, such as Bordeaux-Lyons and Bordeaux-Toulouse, faster than pre-war schedules have been introduced. A high standard of punctuality is being maintained in spite of lengthy permanent way relaying slacks. Some of the most important services are set out in the following tables:—

TABLE A—NON-STOP RUNS FROM PARIS

To	Distance (miles)	Fastest train Time (hr. min.)	Speed (m.p.h.)	Type (see notes)
Arras	119·4	1 53 (1)	63·4	D
Jeumont	147·9	2 24	61·6	R
Poitiers	206·3	3 23	60·9	E
Belfort	275·0	4 36	59·8	R
Le Mans	131·1	2 13	59·1	E
Le Havre	141·6	2 24 (2)	59·0	R
Nancy	219·1	3 43	58·9	R
Saint-Josse	136·9	2 21 (3)	58·3	S
Vierzon	124·0	2 09	57·7	E
Feignies	143·2	2 32 (4)	56·6	S

TABLE B—LONG-DISTANCE RUNS FROM PARIS

To	Distance (miles)	Fastest train Time (hr. min.)	Speed (m.p.h.)	Type (see notes)
Lyons	317·0	5 15	60·4	D
Bordeaux	359·2	6 05	59·1	E
La Rochelle ...	296·0	5 09 (5)	57·5	R + E
Strasbourg	311·4	5 38	55·4	R
Marseilles	535·8	10 35	50·6	S
Nice	675·0	13 55 (6)	48·5	R + S
Port-Ventres ...	593·3	12 36 (7)	47·1	E + S

NOTES

S, Steam; E, Electric; D, 3-car diesel-electric train; R, Railcar.
(1) Continues to Lille, 156 miles, in 2 hr. 38 min. = 59·2 m.p.h.
(2) Includes 2 min. stop at Rouen.
(3) "Golden Arrow," passing time, continues non-stop to Calais, 185·9 miles, in 3 hr. 28 min. = 53·6 m.p.h.
(4) "North Star."
(5) Change at Poitiers.
(6) Change at Marseilles.
(7) Fastest train runs 12 times monthly.

Yours truly,

BARON VUILLET

Bhusaval Locomotive Shed, G.I.P.R.

Block D365, 40 Blocks, Bhusaval,
Bombay Province, India. August 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your publication, *The Railway Gazette*, is to be found at most of the railway institutes and clubs on the Great Indian Peninsula Railway and others. In them I have found interesting reading, and on occasions references to men and matters pertaining to the G.I.P.R.

In this connection I would much appreciate your assistance regarding Bhusaval locomotive shed. I should appreciate copies of any references made to Bhusaval locomotive shed, G.I.P.R.

I am a supervisor in this shed at present, and have been to the L.M.S.R. works, Crewe, in 1941-42. I am preparing an article on this shed, and would find references of great value to me, however small they may be. I shall send you one copy of this article for publication in your issue and intend sending one to the G.I.P.R. magazine.

If you are aware of any references made in other technical journals, please be good enough to send me such notes.

Yours faithfully,

MAX. I. ROSE

[Perhaps some of our readers can refer Mr. Rose to items dealing with Bhusaval which have come to their notice.—ED., *R.G.*]

The Scrap Heap

Forty-Hour Week

This story was told by Lt.-General Sir Giffard Martel at a Camberley Conservative meeting:

Mr. A. V. Alexander, Minister of Defence, said Sir Giffard, addressed a gathering of senior Army officers: "I want you officers to work hard. I want you to work very hard indeed," said the Minister.

Then an officer asked Mr. Alexander when and if "you propose to bring in a forty-hour week for Army officers."

Sir Giffard said Mr. Alexander did not take the question at all well.—*From "Londoner's Diary" in the "Evening Standard."*

* * *

Fewer Civil Servants

Between April 1 and July 1 this year the total number of Civil staff employed in Government departments decreased by 5,335. The total number employed on July 1 stood at 711,618, excluding industrial staffs.

The largest cut was in the revenue departments, which showed a reduction of 7,681, but the departments concerned with trade, industry, and transport showed an increase of 9,984, which was due to additional staff called into the Ministry of Food to deal with the annual exchange of ration books. The outstanding reductions were effected in the Post Office, the Ministry of Labour, and the War Office.

* * *

British Transport Dictatorship

Under the heading "British Transport Dictatorship," the Transport Act is the subject of some scathing remarks by the French periodical *La Vie des Transports*. The article says: "One seeks in vain any trace of the love of liberty which led England to struggle with her utmost energy against the Hitlerian dictatorship. No Nazi organisation in Germany saw anything of so rigid a character, so dictatorial, as that presented in the Transport Act, 1947." After noting that a Cabinet Minister becomes the "Führer of British Transport," it adds: "We are curious to see how a gigantic transport organisation, conducted by Oxford and Cambridge graduates, is going to provide sound management with executives who will be mere functionaries, having no personal interest in achieving the prodigies which are the daily facts of the small contractor in free enterprise."

* * *

Two Englands

The late Mr. Disraeli, that ardent Tory Reformer, the mention of whose name so distresses our modern Socialist propagandists, once wrote about "the two Englands."

There are now, no less than a century ago, two Englands. There is the England of the small, privileged minority of V.I.Ps for whom the Government-supplied limousine is waiting, for whom 22 per cent. of first class sleeping berths and 6 per cent. of the third class sleeping berths on the railways are still reserved, who move on "priority" as the ancient gods on Olympus once moved on sun-kissed wings.

And there is the England of the rest of us, sweltering, shoving, pushed about in queues, ordered around by that ghastly disembodied voice: "Pahssengahs for the naine-forty-faive for Sunbourne-by-the-Sea will take their places in the queue on Platform Naine."

Did people once reserve seats on railway trains by paying a shilling? How barbaric, how reactionary. How splendid and progressive is the modern system whereby you apply (through your appropriate Ministry) to the M. of T., who will, in due course, allocate in accordance with ta-ra-de-ra.—*From "The Evening News."*

* * *

Using a Timetable

Some people have a horror of timetables and much exaggerate their complexity. Actually, any person of average intelligence who will take care will not find the slightest difficulty, or ever make such mistakes as will cause him to wait in the early hours of the morning for a train that doesn't leave till after lunch. Always look at all the notes, indicated, as a rule, by letters against the times or at the head or foot of the column; notice carefully how times before midday and times after midday are indicated, remembering that, for instance, 1 a.m. is in the middle of the night and not lunch time; use the index and turn up all references, as the town may be served by more than one line, in which case you must compare the services; if a cross-country journey is to be made, look for possible through services.—*From "How to Find Out," by Lionel McColvin.*

* * *

100 YEARS AGO

From The Railway Times, *Sept.* 25, 1847

MIDLAND RAILWAY.—To CONTRACTORS.—The Directors of this Company will meet on Friday, the 1st of October next, to receive TENDERS for the execution of the WORKS on the following LINES:—

No. 1.—An extension of the Erewash Valley Railway, from a point near Codnor-park, in the parish of Selston, to a point situated in the parish of South Normanton, being a distance of 3 miles and 11 chains or thereabouts.

No. 2.—A branch extending from the last mentioned Railway, in the parish of Alfreton, to the junction with the Mansfield and Pinxton Railway, in the parish of Selston, being a distance of 2 miles and 5 chains or thereabouts.

No. 3.—The widening, relaying, and other works connected with the alteration of the Mansfield and Pinxton Railway, being a distance of 7 miles and 29 chains or thereabouts.

No. 4.—The erection of a station at Mansfield.

Plans, sections, drawings, and specifications may be seen at Mr. Swanwick's office, at Chesterfield, on the 21st of September, where parties intending to tender are requested to be present at 11 a.m.

Sealed tenders must be delivered to the secretary, at Leicester station, before 10 a.m., on Friday, the 1st of October.

The Directors do not bind themselves to accept the lowest tender.

By order,

J. F. BELL, Secretary.

Derby, September 3rd, 1847.

* * *

"Merci, m'sieu. At this rate your thirty-five pounds should last you quite a time"

[Reproduced by permission of the proprietors of "Punch"

Sleeping Berth Priority

The following extracts are from letters which have appeared recently in *The Times*. In our last week's issue we gave the Ministry of Transport analysis of priorities, which was: Business and professional men, 13 per cent.; Members of Parliament, 5 per cent.; senior officers of the fighting services, 1·2 per cent.; senior civil servants, 0·8 per cent.

On one occasion I made a journey by night to deal with a Government contract. I asked the department concerned to include my name in their list for a sleeping berth. My application was refused. I made a great part of the journey standing in the corridor.

In the morning on arrival there descended from the sleeping car two officials of the department whose combined ages did not greatly exceed my own. We had breakfast together and later met on the site to deal with the contract.—*Lord Dudley Gordon.*

Now that the war is over, why should there be any reservation of sleeping berths for priority passengers? Did such privileges exist before 1939?—*Mr. P. K. Hodgson.*

Some weeks ago I made a night journey with a friend to Scotland. I had applied for sleeping berths weeks beforehand, but on joining the train found that my friend and I had been doubled up in a first class compartment normally reserved for one person. There was little room for ourselves, let alone our suitcases.

Walking down the car I found compartment after compartment occupied by solitary young or youngish men furnished with attaché cases. The conductor, when asked why, if space was limited, young men were not sent to climb up ladders to upper berths rather than elderly ladies, replied it was no business of his—these were priority reservations for the Ministry of Transport.—*Miss Violet Markham.*

Whether it be "bureaucrats" or business men (or women) who get priority, this is based on the sound and I think justifiable reason that these persons have to work the day before and the day afterwards, and this would soon become impossible with periodic nights without sleep. It is not so with occasional travellers, whether or not their journey is necessary, for one night of lesser comfort will in their case not be disastrous, and becomes in the case of holiday-makers part of the thrill of travelling.—*Mr. Arthur Woodburn.*

I am naturally harrowed by Mr. Woodburn's picture of pale and exhausted officials struggling to conduct the business of the country after the "disaster" of a night journey without a sleeper. But I must stick to my original point that as officials multiply the establishment of official priority in this matter means that the comfort of the general public will be more and more relegated to the background. There are business men without any priority who also have to make night journeys of as much value probably to the trade of the country as those concerned with the often leisurely deliberations of departments.—*Miss Violet Markham.*

Correspondents who object to sleeping berths being reserved for those travelling on public duty do not appreciate the position. If they were to take their place in the queue they would rarely get a sleeper at all. As a rule they do not know on what night they will have to travel in time to give them the smallest chance of entering the list, except at the very tip of the tail.—*Mr. Arthur Moon.*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Transport Ministry Building

A new Ministry of Transport building, which will have as much office accommodation as the Union Buildings, will be erected in Paul Kruger Street, Pretoria, at a cost of £2,694,645. It is unlikely that the building will be completed before 1953. Accommodation will be provided not only for the Ministry of Transport but also for the Railway Commissioners, the Railways & Harbours Service Commission, the Directorate of Civil Aviation, the Director-General of Motor Transport, the National Road Board, the Central & Pretoria Local Road Transportation Boards, the Tourist Development Corporation, and the System Manager, Pretoria.

Inquiry into Railway Rates

Opening the conference of the Natal Inland Public Bodies' Association at Ladysmith on August 11, the Minister of Transport, Mr. F. C. Sturrock, said that he intended to appoint two South African economists and an expert from overseas to conduct an inquiry into the effects of the present rating structure of the South African Railways, and to find out whether changes could be made.

He said that he considered the handing over of any measure of control of the railways from Parliament to private or sectional interests would be extremely dangerous. Critics had alleged that the railways were inefficient, but at the same time vigorously opposed expenditure on buildings and plant calculated to improve efficiency in working.

Comparing the average revenue per ton-mile of the South African Railways with European and American railways, he said that the South African charge was 0·827d. a ton-mile—one of the lowest in the world. The South African coal rate was the lowest in the world. In view of these figures, he asked how it could be said that the railways were extravagant and inefficient.

Johannesburg-Cape Town "Blue Train"

The railways are planning to run two "Blue Trains" weekly between Johannesburg and Cape Town. The second luxury train probably will be introduced with the summer train service, which comes into operation next November. The demand for booking on the weekly "Blue Train" to Cape Town for some time has been far greater than the accommodation available, and there always has been a long waiting list. In addition to meeting this demand, the extra "Blue Train" probably will be arranged to connect with the regular mailboat schedules.

At present the railways have only sufficient *de luxe* train stock for the "Blue Train" and the luxury train from Johannesburg to Durban (see *The Railway Gazette* of May 2), but the Durban train may be discontinued during the summer months to make the stock available for the Cape route, which has proved more popular for luxury travel.

Colour Scheme for Main-Line Stock

Main-line trains are to be painted like the coaches of the "Orange Express" from Cape Town to Durban (see *The Railway Gazette* of May 2). They will be coloured a deep chocolate brown up to window level, with cream above that line. This colour scheme was used originally on the pilot train during the Royal Tour, and proved so attractive that it has been adopted as an alternative to the present drab brown. Suburban coaches will not be repainted for the present. Some time may elapse before all main-line saloons can be repainted, since this can be done only when they reach the workshops for overhaul.

When the new colour scheme for S.A.R. trains first was mooted, the possibility of a distinctive colour for each main line was considered. This idea had to be abandoned, however, because of the shortage of rolling stock, which makes the interchange of saloons from one route to another inevitable.

CEYLON

"Out-Agency" System to be Introduced

With the gradual establishment of schemes of co-ordinated road and rail transport on the initiative of the railway, a new system of out-agencies is to be opened on all sections where a link-up of road and rail services is established. These agencies will book passengers or goods to any part of the island served by the co-ordination arrangements.

The railway began by co-ordinating road and rail traffic between Nanuoya and Ragalla, and between Chilaw and Puttalam. In August, it established a similar service between Matara and Hambantota.

Wherever possible, the transport of road passengers on these routes is entrusted to a bus service on a contract basis. Goods are carried by the railway with its own lorries.

C. & D. Service in Colombo

Another feature of the new arrangements is the opening of agencies at Mt. Lavinia, and at Wellawatte (within the city of Colombo), for light goods traffic. Hitherto residents of these areas had to come to the main goods shed at Colombo, several miles away, to collect goods brought in by train. Under the new scheme, railway lorries ply between Colombo and Panadura, calling at Wellawatte and Mt. Lavinia, where they deliver and collect consignments of less than 3 cwt.

INDIA

Inquiry Committee's Tour Ends

The Indian Railways Inquiry Committee, 1947, popularly known as the High Power Railway Committee, returned to Delhi on August 25 after a prolonged tour over the South Indian, M.S.M., Mysore State, B.N.R., E.I.R., B.B. & C.I., and G.I.P. Railways.

The committee (see *The Railway Gazette* of June 13) was set up early this year to suggest ways and means of improving operation and effecting economies on Indian railways. During its tour, it recorded evidence at all these railway headquarters and met representatives of the provincial governments, as well as important industrial and commercial organisations. Evidence of high-ranking Government officers having experience of railway administration had been taken at Simla before the committee went on tour.

The committee now is engaged on finalising its recommendations, and it is expected that the report will be submitted to the Government of India by the end of September. At one time it was contemplated that the committee also would examine the working of the Pakistan railways; that proposal is understood to have been dropped.

Special interest will attach to the recommendations of this committee in view of the re-distribution of railways necessitated by the partition of India, which has affected some railways considerably, and may make it difficult for them to be developed as economic units.

Police Posts at Railway Stations

"May I Help" police posts are to be established immediately at Victoria Terminus and at Poona on the G.I.P.R.; and at Bombay Central and Ahmedabad and other stations on the B.B. & C.I.R. At all these stations there will be two such posts, one for third class passengers and the other for first and second class passengers. Posters bearing the words "May I Help" will be displayed.

Passengers may seek assistance of policemen on duty at these posts in hiring a taxi, coolie, or a tonga. Information about railway timings, hotels, and similar matters will be supplied on demand.

New Constructions

The Government Inspector of Railways, Circle No. 2, Calcutta, has authorised the opening for the public carriage of passengers of the 11-mile metre-gauge extension of the Bengal Assam Railway from Jorhat Town to Mariani.

The Railway Board has sanctioned the estimate for the construction by the Great Indian Peninsula Railway of a new broad-gauge 81-mile line from Bhimsen to Khairada.

UNITED STATES

U.P. Abolishes Tourist Sleepers

Elimination of tourist sleeping cars will be almost complete by October 1 on the Union Pacific. The only exceptions by that date will be those running between Portland, Walla Walla, and Lewiston. These will be removed as quickly as the coach-sleepers formerly operated on these lines are renovated. The abolition has been effected within six months of its being announced by the President of the Union Pacific, Mr. C. F. Ashby, who on that occasion described tourist sleeping cars as "an outgrowth of the old emigrant car."

Lengthy Diesel Freight Trips

Longer runs of freight trains with diesel power have been scheduled by the Pennsylvania since mid-July. Beginning on July 16, Electro-Motive four-unit 6,000-h.p. locomotives have been booked to run through in both directions between Jersey City and Chicago. The westbound train makes the journey of 908 miles in 41 hr. 15 min.; eastbound, the timing *via* Columbus, Ohio, is 37 hr. 15 min.

CANADA

Automatic Signalling Extension

The C.P.R. is in the process of establishing automatic block signalling on the 72-mile section of line from Kamloops to Spence's Bridge. This will bring the total of C.P.R. track equipped with absolute signals up to 2,695 miles, out of which 1,009·4 miles are on the lines west of Fort William.

The new installation will complete continuous automatic block signalling on the transcontinental line from Kamloops to Ruby Creek, a distance of 169·5 miles. Traffic on the Kamloops-Spence's Bridge section, following the winding course of the Thompson River, averages 22 trains in

every 24 hr., of which ten are transcontinental passenger trains, including the "Dominion" and the "Mountaineer."

Diesels on Vancouver Island

Plans for complete conversion of the Esquimalt & Nanaimo Railway, on Vancouver Island, to diesel-electric power have been announced by Mr. W. M. Neal, Chairman & President of the Canadian Pacific Railway, which owns the E. & N. The changeover from steam to diesel-electric will occur during 1948 with the expected delivery of the new locomotives to be used on the railway both for passenger and goods working and for shunting at terminals. This will be the first large operating section of the C.P.R. to transfer to diesel power, and the results will be studied closely. Diesel shunters are in use already at several main terminals of the C.P.R., and new units of this type are on order for Vancouver.

DENMARK

The State Railways in 1946-47

The working results of the Danish State Railways in the year ended March 31, 1947, showed a considerable improvement over the preceding year, as will be seen from the following figures:—

	1945-46	1946-47
Kilometres open	2,556	2,595
Passengers by railways and ferries (millions)	79·3	95·7
,, by buses	3·9	8·7
Goods (millions of tonnes) ...	9·84	9·05
Train-km. (millions)	17·91	25·63
Operating ratio (per cent.) ...	101·4	93·8
	Million Kroner	
Passenger receipts	125·3	166·6
Goods ,, ...	112·3	123·6
Bus ,, ...	3·8	8·1
Other ,, ...	11·4	11·0
Gross ,, ...	252·7	309·4
Working expenditure	256·1	290·1
Net surplus	−3·6	+19·3
Depreciation charges	4·8	5·1
Interest on capital	10·4	9·6
Surplus after charges	−18·7	+4·6

The better fuel situation made it possible to improve passenger train services considerably, so that about 70 per cent. of the train-km. run before the war were achieved. Express and diesel services, in particular, were increased. The number of goods train-km., however, was reduced slightly. Yet all trains continued to be overcrowded, as the number of journeys also went up by over 20 per cent. In the Copenhagen suburban area, where passenger travel has increased very much in recent years, the increase in 1946-47 was only 15 per cent., the number of journeys being 56·6 millions as compared with 49·3 millions in 1945-46.

Goods Traffic Trends

The fall of 8 per cent. in goods traffic was due mainly to the fact that traffic in home-produced brown coal and peat, although still heavy, did not reach the same huge volume as in the preceding year. Further, competition from coastal shipping and from road hauliers for many kinds of goods now is beginning to be felt again. With the improved supply of petrol, it was possible to double the mileage run by the State Railways buses, and the number of journeys by these services was more than doubled also.

Higher Fares Counteract Costs

Working expenses went up by over 13 per cent., mainly because of the increase in salaries and wages, which became effective from April 1, 1946, and amounted to about 15 per cent. on average. There would, therefore, have been a considerable deficit if the rates and fares had not been raised. Fares during the war were raised by 25 per cent., and from August 1, 1946, a further increase of about 20 per cent. was put into force. In goods rates, which also were raised 25 per cent. during the war, the increase from August 1, 1946, averaged only about 10 per cent.

Of the total train-mileage, about 60 per cent. was worked by steam engines, 31 per cent. by diesel traction, and 9 per cent. by electric multiple-unit trains. The State Railways ferries and ships covered 626,800 km. during the year.

Norwegian Ferry Recommended

A joint committee from Denmark and Norway has reported to the Governments of the two countries concerning the eventual opening of a train ferry route from Southern Norway to Northern Jutland.

According to the committee's calculations, the service would be worked at a loss, but it finds that the route in the future would be of so great importance to national economics and traffic that its opening is recommended as soon as the ferry docks can be built and a ferry acquired.

The terminal in Denmark will be Frederikshavn, but it is not yet decided whether in Norway the route will terminate at Kristiansand or Larvik. One daily service each way is contemplated, for which one diesel ferry with three tracks would suffice. The Danish State Railways would provide the first ferry and run the service, the Norwegian State Railways paying half the expenses and receiving half the receipts.

GREECE

U.S. Engines Shipped to Athens

Twelve U.S.A. 2-8-0 locomotives from the American surplus of this type in Europe were purchased by the Greek Government earlier this year for use on the Hellenic State Railways. The engines were sent by sea from Antwerp to Piræus, where the only equipment suitable for unloading them was one 90-ton crane which had survived destruction during the war. It was the first time the crane had been used for handling locomotives as heavy as these 2-8-0s, which weigh 67 tons.

In the accompanying illustration, one of the engines is seen being swung by the crane from the ship to the quayside railway track. On account of the limited radius of the crane, the locomotives had to be slung at an angle of about 20 deg. to the vertical in order to clear the superstructure while being swung through 90 deg. in the course of the transfer from ship to shore. The new motive power is being used on the Piræus—Gravia section of the State Railways.

FRANCE

Paris Suburban Traffic

Paris suburban passenger traffic on the French National Railways was the subject of a recent article in *La Route du Rail* by M. Jean Goudard, Inspecteur de l'Exploitation de la S.N.C.F. He showed that around the capital an estimated population of 2,600,000 is dependent mainly for transport facilities on 590 route-miles of line. Traffic is most intense in the western area, where there are 208 miles of line for a population of 1,080,000, and most routes are operated by electric traction.

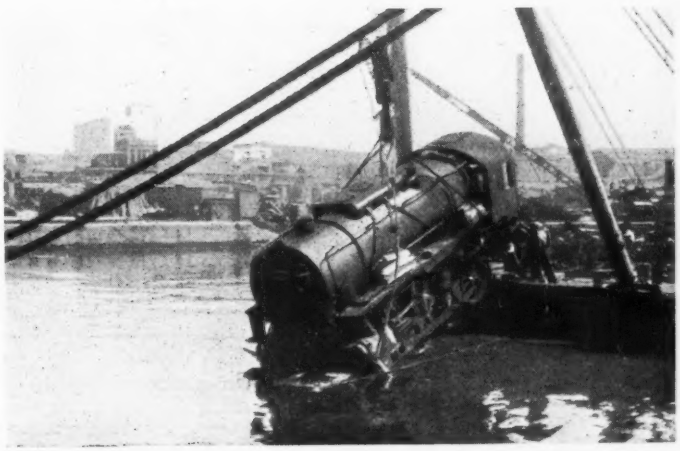
Electric Routes and Trains

The S.N.C.F. operates 155 miles by electric and 435 miles by steam traction. All the electric lines are in the Western and South-Western Regions. Trains on the Western Region lines from St. Lazare are formed of units each consisting of one motor coach and one trailer. The make-up varies from one to four units. South-Western Region trains are made up of from one to three units, each comprising one motor coach and two trailers. Budd lightweight steel articulated coaches run on the trains from Montparnasse to Rambouillet.

Serving Outer Suburbs

To avoid running empty coaches in the outer suburbs, certain trains terminate at intermediate stations, calling at all places *en route*. Passengers for destinations beyond these intermediate terminals change there into another train that has come non-stop from Paris, but serves all stations for the rest of its journey. Such a combination of two short, well-filled trains proves more economical in practice than a single long train stopping at all stations, and the non-stop runs save time for outer suburban passengers. Electric trains frequently are divided at junctions in order to serve two different lines.

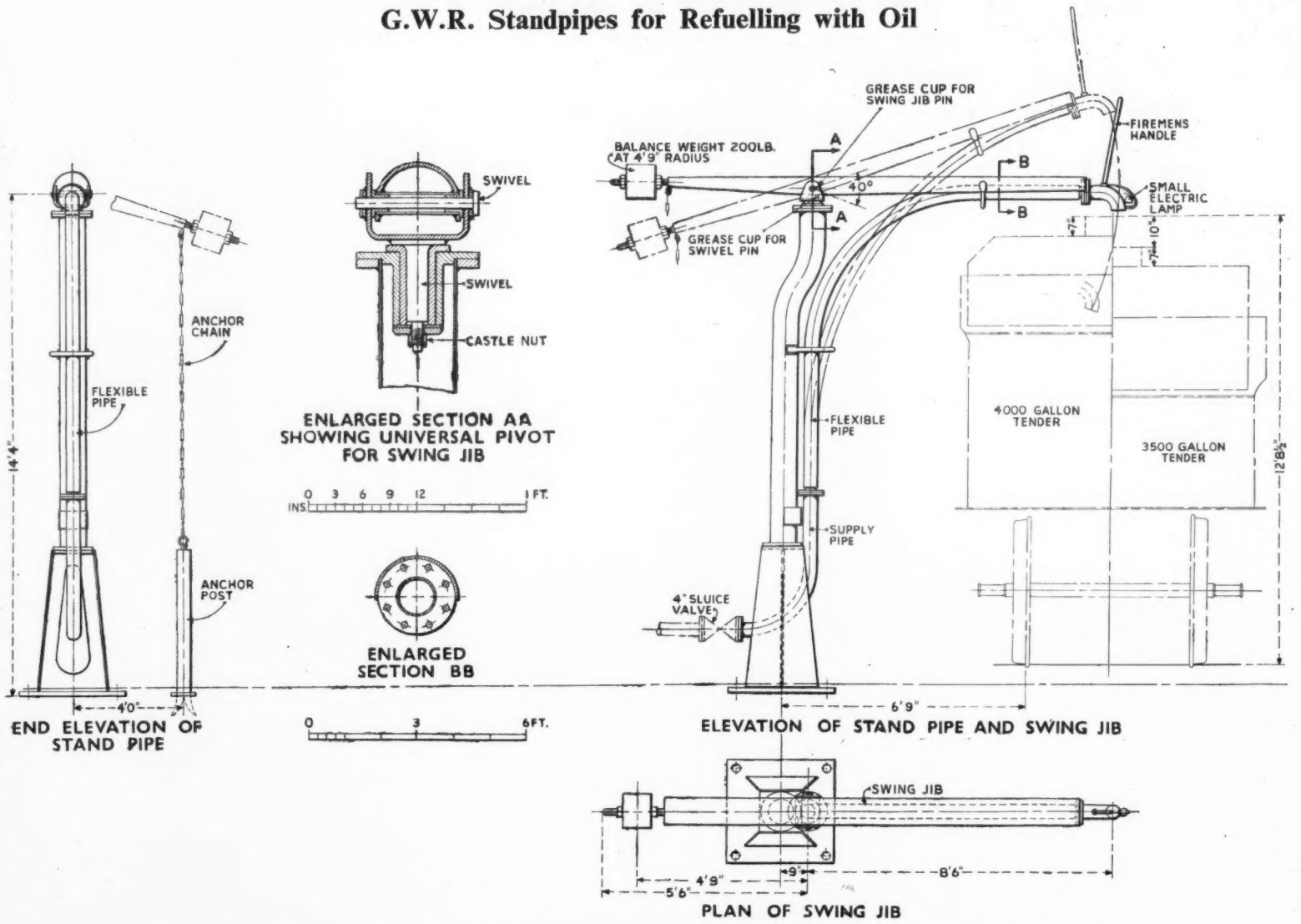
Delivery of U.S. Locomotives for Greece at Piræus



Unloading one of the 2-8-0 locomotives at Piræus with a floating crane. An inclination of 20 deg. was necessary to clear the crane superstructure

Photo] [*Michael Koen*

G.W.R. Standpipes for Refuelling with Oil



Dimensions of standpipe and details of the universal swivel mounting of the swing jib for refuelling tender tanks

G.W.R. Standpipes for Refuelling with Oil

Design based on water column, for operation by engine crew, but eliminating leakage and waste

AT the outset of the conversion of engines for burning oil, refuelling of the tenders was performed by means of the same flexible pipes used for draining oil from the travelling oil tanks, and the connection on the engine tender was, therefore, at solebar level. So long as the number of engines to be dealt with remained small, this constituted the simplest and cheapest arrangement, since the one connection to the oil pumping line served both for unloading the travelling oil tanks and refuelling the locomotives.

With the big increase in the number of engines burning oil under the Ministry of Fuel & Power scheme, however, the slowness of the operation, which was by no means the only disadvantage attached to this method, made it necessary to explore the possibility of a more rapid means of putting oil into the tender tanks. The natural solution to this problem was to use apparatus as similar as possible to the water column, and operated by the footplate staff in a similar manner.

The design of the water column, however, includes several features which preclude entirely its use for oil. In the first place, while a fair quantity of water may be spilled from the water column hose when it is withdrawn from the tender tank with no serious disadvantage, only a very small quantity of oil regularly spilled from the oil fuelling pipe would foul rapidly the entire area around the appliance. Moreover, the water column includes a gland around the vertical pipe, which is arranged to swivel and provide the necessary movement of the water hose from its position alongside the track when out of use to the centre of the tender manhole when the tender is being filled. Such a gland, of course, requires repacking in time, but before this stage is reached, some quantity of water escapes through the gland every time the column is used.

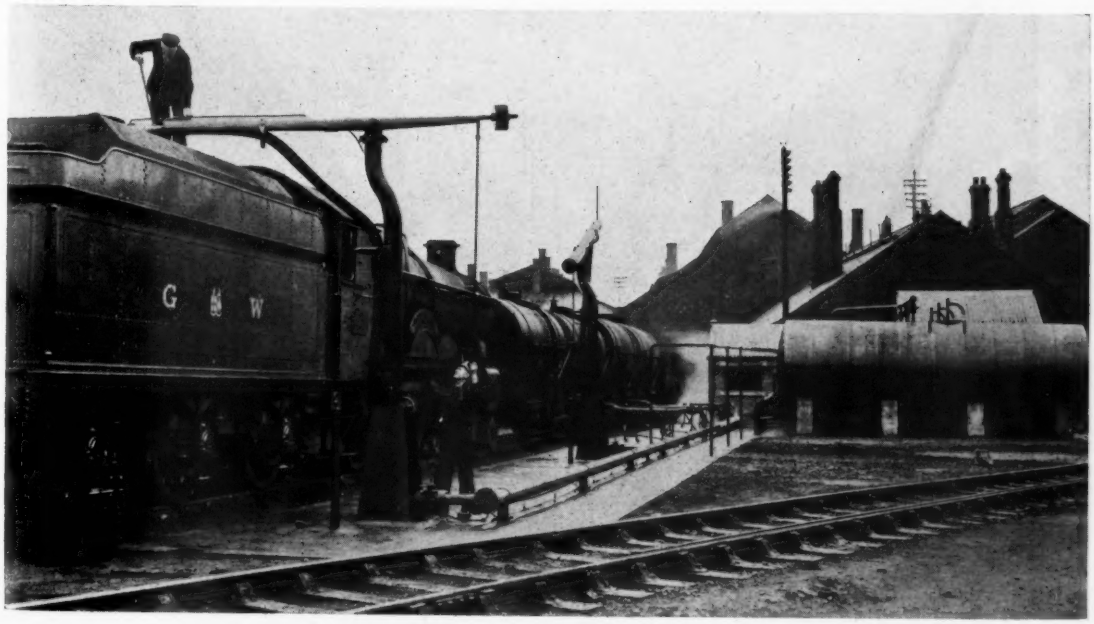
While the principle of the water column was agreed to, therefore, further considerations had to be met in designing the oil fuelling standpipe, namely:—

(1) There should, if possible, be no glanded joints whatever; and (2) the column, whilst swinging in the horizontal plane, should be arranged also to rise and fall in the vertical plane sufficiently for the oil left in the fuelling pipe after completon of refuelling the tender, to drain back into the system and not drip to waste on the ground.

Both these features are provided in the standpipe designed by the G.W.R., and now adopted as standard throughout that company's system. By means of a 14-ft. length

(*Continued on page* 359)

General view of G.W.R. standard oil standpipe



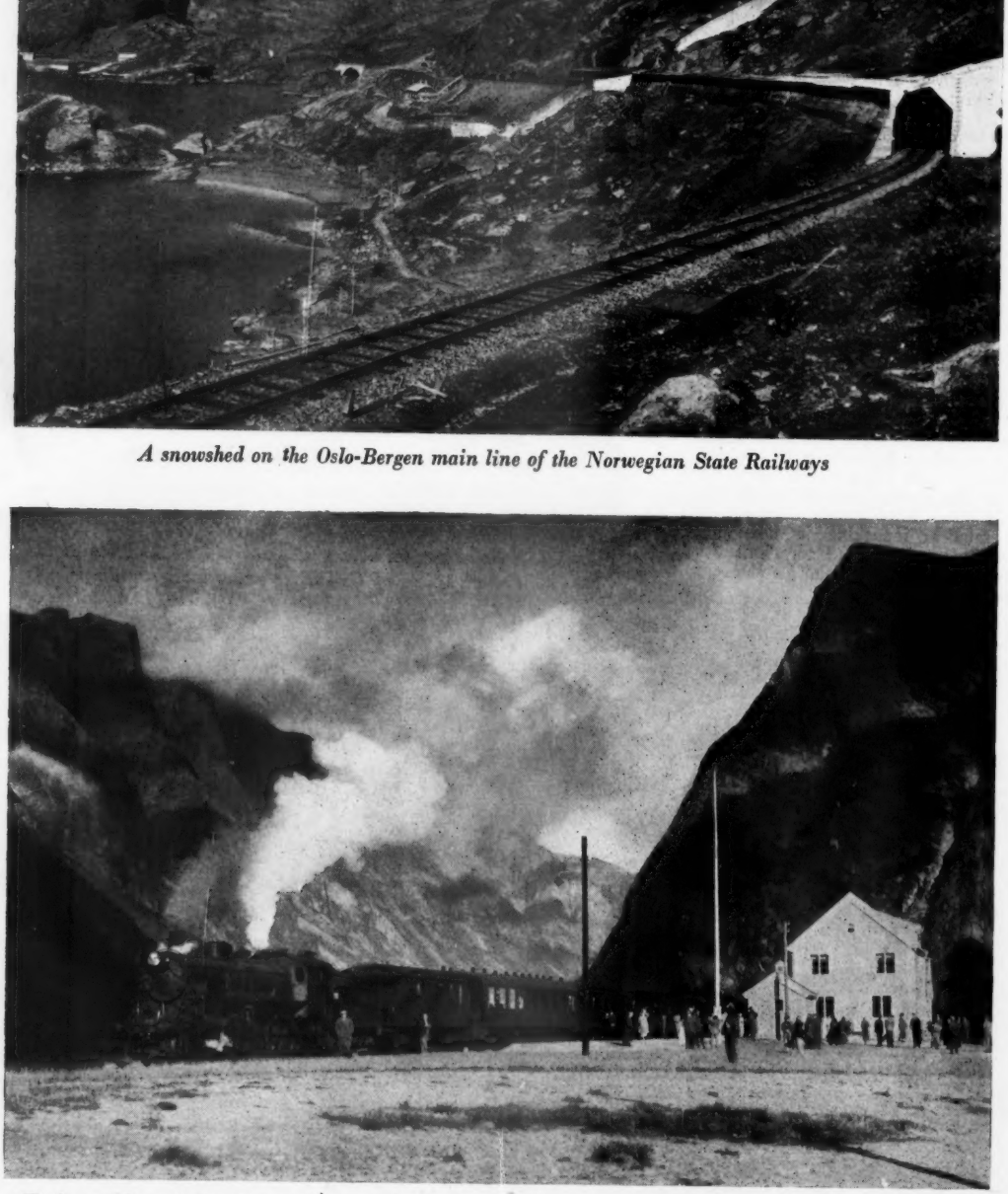
Engine crew refuelling their locomotive from one of the new standpipes

Dimensions of standpipe and details of the universal swivel mounting of the swing jib for refuelling tender tanks

Railway Scenes in Norway

(*see article opposite*)

A snowshed on the Oslo-Bergen main line of the Norwegian State Railways



Train at Marstein Station, on the branch to Andalsnes from the Oslo-Trondheim main line at Dombas

Post-War Travel in Norway

Impressions of a journey through the country from north to south

(From a correspondent)

NORWAY probably is making one of the quickest recoveries, if not the quickest, of any of the occupied countries. Nowhere is this more evident than in the present efficiency of the railway system, and the schemes now being put in hand for future development and improvement.

The writer travelled from top to bottom of Norway. Distances are great and journeys often involve the best part of a day. Nevertheless, travelling is comfortable and pleasant, enabling the visitor to see a wonderful panorama of mountains, lakes, and fjords through which the lines run.

The Bergensbanen (the name of the railway between Oslo and Bergen, a distance of 306 miles) is a masterpiece of engineering. It has 199 tunnels totalling a distance of 45 miles. The longest, the Gravahalsen Tunnel, between Myrdal and Upsete, is over three miles in length, and is constructed at a height of some 3,500 ft., above sea level, which is a greater altitude than some of the mountains in the Lake District of Great Britain.

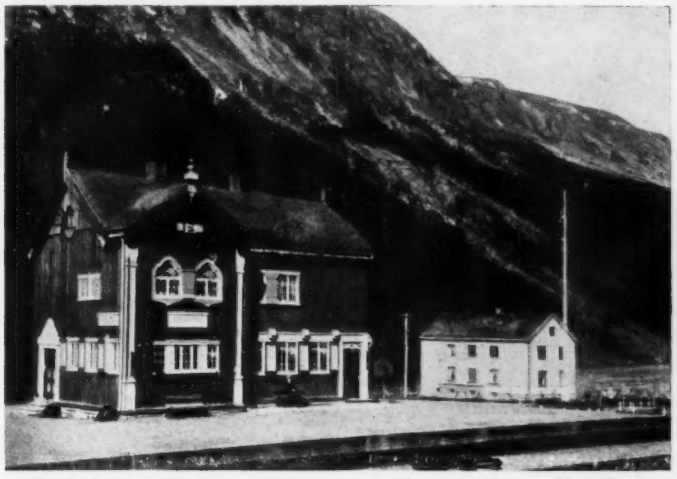
An express day and night service is run between Oslo and Bergen, which takes about 12 hr. Night trains have first, second, and third class sleeping berths; day trains, second and third class carriages, with restaurant cars attached. The food and attendance in dining cars is good, and trains also halt at railway restaurants *en route* long enough to allow passengers to alight for refreshments.

The Norwegian State Railways cover a distance of 2,734 miles, from the Swedish border in the south to Mo-i-Rana in the Province of Nordland. Work is at present in hand to extend the line a further 93 miles to Saltdal, at the head of the Saltdalfjord—an engineering feat which will not be completed until 1950 on account of the difficult terrain encountered—and from there it eventually will be extended to Bødo, the busy port at the entrance of the fjord.

Although Norway possesses more hydro-electric potential than any other country, this latent energy has not been fully developed yet, with the result that at present only 18 per cent. of the 2,734 route-miles are electrified. The remainder is run on coal, which, before the war, came from England, but now comes from Poland or Spitzbergen.

Nevertheless, 35 per cent. of the total rail traffic in Norway is carried on the lines already electrified, and it is a pleasure to travel on them. Many of the first and second class carriages are of the saloon type, furnished with comfortable sofas against the walls and armchairs arranged around a table in the centre. This allows freedom of movement on long journeys.

The views along the line, especially in the north, are magnificent, probably unsurpassed for beauty and grandeur elsewhere. Stations often are at sea level, but the line will rise to some 4,000 ft. or more between them.



Typical wayside station architecture on the main line to Trondheim

L.M.S.R. Wagon Conversions for P.W. Work

Former W.D. "Warwell" type fitted with bolsters and flooring

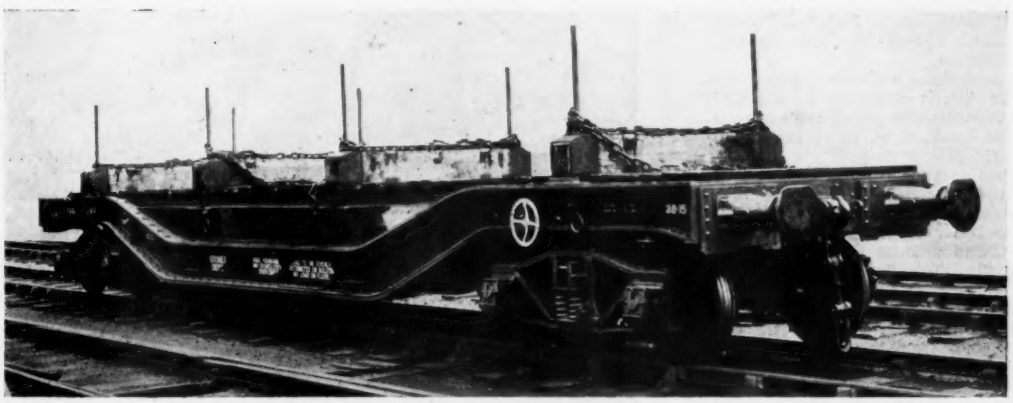
AN interesting conversion which has been carried out recently in L.M.S.R. workshops is that of fifty 50-ton ex-W.D. "Warwell" wagons for use as bogie bolster wagons. The vehicles were purchased from the Ministry of Supply, and will be used to accelerate the delivery of steel rails in connection with the L.M.S.R. permanent way renewal programmes.

In order to adapt the vehicles for this requirement, it was necessary to add four bolsters, and a platform, on which staff engaged in loading and unloading can walk. The four bolsters are arranged one over each bogie centre, and two over the wells; the latter pair is supported at the same level as the other two on cross-channels, which are in turn supported from the well solebars on the jack pressings, which have been removed from the headstocks and adapted for this purpose.

The floor, which is of timber, is supported over the well by steel channels and tees, attached to bolster supports and the ramp ends of the well. The principal dimensions are:—

Length over headstocks ...	43 ft.
Length over buffers	47 ft.
Centres of bogies	33 ft.
Wheelbase of bogies... ...	5 ft. 9 in.
Width over body	8 ft. 3 in.
Height of floor from rail ...	4 ft. 3¾ in.
Height of bolsters from rail	5 ft. 3¾ in.

The capacity of the altered vehicles, for practically unrestricted passage, is 30 tons.



Former "Warwell" wagon converted to bogie bolster P.W. wagon

South African Railways & Harbours Children's Homes

Six establishments for children of deceased railwaymen are maintained by voluntary contributions from the staff

The children's home at Pietermaritzburg, Natal

TWENTY-THREE boys, ranging in age from 9 to 11 years, came walking briskly down a street in Pietermaritzburg, the administrative capital of Natal, dressed in white knickers and shirts, with black shoes and stockings and school caps on their heads, with the blazing African sun overhead. These children, as should be the case with all normal children, had carefree, happy expressions, and gave the impression of wellbeing. On inquiring it was found that the boys came from Natal House, a branch of the South African Railways & Harbours Children's Homes.

The idea of the establishment was first mooted in 1911 by Mr. George Saunders, a locomotive driver in the employ of the S.A.R. & H. Administration, but did not gain momentum until 1918, as a result of the influenza epidemic and the 1914-18 war. In that year a conference was held of servants of the administration, representative of all grades, under the chairmanship of Mr. J. R. More, then Assistant General Manager of Railways. As a result of this meeting a beginning was made with the collection of subscriptions from railwaymen, and the first home was established in Grahamstown and opened formally on November 5, 1920. Since that date additional homes have been opened, and at the present time the association has homes situated at Bloemfontein, Pietermaritzburg, East London, Uitenhage, New Canada, and Rondebosch.

The association, registered under the Companies Act, is controlled by a Board of Management representing all European staff of the S.A.R. & H. who subscribe to the homes. Membership of the association is open to all European members of the S.A.R. & H. staff, and subscriptions or membership fees are collected by means of a stop order from members' salaries or wages, and amount to not less than 1s. a month. The Railway Administration has granted the stop order facility to the association without cost.

The association does not receive any monetary grant from the Government or from the Railway Administration, and is entirely self-supporting. Its income is derived from voluntary subscriptions and donations from well-wishers. The association has an annual expenditure of approximately £33,000, whilst its assets are: lands and buildings, £101,818; furniture and equipment, £9,000; with an endowment fund of £25,510.

Since the opening of the first home in 1920, approximately 1,300 children have been accommodated. At present there are 261 children in the homes, whilst 33 mothers, whose children for some reason or other have not been admitted, are in receipt of grants in aid for their children, in respect of their maintenance. The association has a European staff of 29 in the homes and an administrative staff of four. The association caters for the children of deceased railwaymen of European descent who need not necessarily have belonged to the association.

On admission to the homes, a child is the entire responsibility of the association, and schooling facilities, as well as all normal requirements, such as food, hospital treatment, when necessary, are provided. All aspects of child welfare are attended to constantly. Children attend Government schools and worship in the church of their parents. The children are educated and trained in whatever trade or profession they show an aptitude for, some as artisans, others as shorthand-typists and office workers. Some of the inmates have qualified as engineers, chemists, and teachers.

On the completion of a child's education, employment is found for him or her at the centre where the mother is domiciled, wherever practicable. The association does not adopt the children, but takes charge of them, accommodates, and educates them. Certain children earn a small wage during the early years of their careers, and in these cases an allowance is paid to them monthly to assist them.

A Normal Home Life

The life that a child leads in the homes is made as nearly normal as is practicable. They rise at 6.30 a.m. and prepare themselves for school, to which they proceed after breakfast. The children of one home may attend as many as six different schools in the town. On arrival at the home from school, the children, after they have had a meal, are required to change their clothes and on certain days to do an hour's work in the gardens or in the home; thereafter they may take part in sport which is organised at the home.

One home boasts two Rugby teams, which play no mean game. Children also take part in cricket, wrestling, boxing, carpentry and blacksmith work at the home.

A library is provided with approximately 1,000 books. A games room is equipped for bagatelle, darts, or any other indoor game which is available. A tennis court is provided, and tennis is encouraged amongst the children. In the regulation size swimming bath in the grounds of the home, many pleasant galas are held.

During the existence of the homes only one child has died whilst in the care of the association. The general standard of health of the children is high. This is attributable to the board's policy of an active open-air life for the children, as well as balanced diets. The homes constitute an achievement of which every railwayman in South Africa is justifiably proud, particularly in view of the fact that the homes have been built up, maintained, and controlled by their voluntary contributions and active interest. The word "orphanage" is taboo. A homely atmosphere is fostered and encouraged in every possible way.

A mealtime scene at the Pretoria home

Reconstruction of Adam Viaduct, L.M.S.R.

This timber structure, between Liverpool and Manchester, has been rebuilt in pre-stressed pre-cast reinforced concrete

Adam Viaduct after reconstruction

ADAM VIADUCT carries two class 1 tracks, and consists of four spans each of about thirty feet. Before reconstruction, the abutments were masonry, and the intermediate supports timber trestles fixed on masonry foundations; the superstructure consisted of timber beams, braced from the trestles and abutments, and carrying a timber deck. The timber trestles now have been replaced by concrete piers constructed on the old foundations, and the new deck consists of pre-cast pre-stressed I-section beams. The beams are 32 in. deep, the top flange has a maximum width of 20½ in., and the bottom flange is 16 in. wide; the web is 4 in. thick at the centre, and gradually increases in width towards the ends from about the third point. The small space between the top flanges of the I-beams which support each track is grouted, and three 1½-in. dia. high-tensile rods, stressed by means of nuts at each end, fix these units together so that they act as one under live load. Two beams on each side support the parapet unit. All beams were placed individually, and the grouting and transverse stressing were carried out after erection.

The main reinforcement is hard drawn wire of 0.2-in. dia. specially improved patent steel, with a guaranteed breaking strength of 100 tons (224,000 lb.) per sq. in. Secondary reinforcement and stirrups are mild steel. The concrete mix was designed to have a minimum crushing strength on 6-in. cubes of 6,000 lb. per sq. in. in 28 days, or 4,000 lb. per sq. in. in 7 days, using a high early strength cement. There was no difficulty in obtaining this strength, and the mix used was approximately 1 : 3½ (30 per cent. sand), the water-cement ratio was approximately 0.45. The concrete was vibrated into position with external vibrators, as internal type vibrators were not available at the time of manufacture. Each beam has a camber when not loaded.

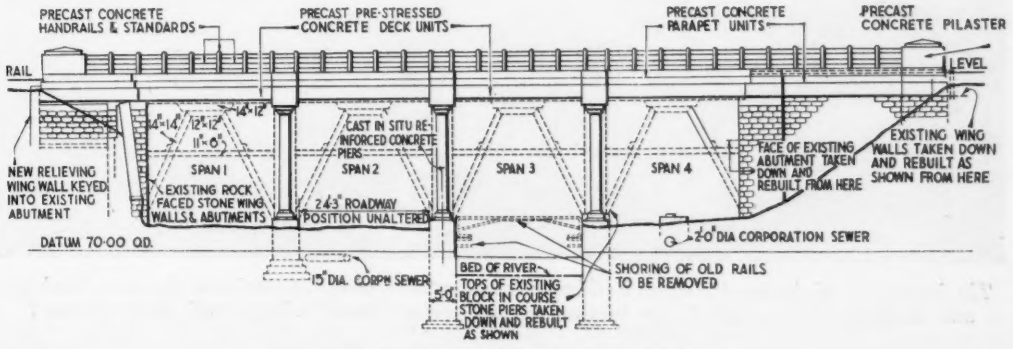
Loading tests were carried out on two of the beams by supporting them at the ends, and applying a point load at the centre by means of a jack re-acting against a temporary load. This test load was equivalent to the designed load plus 50 per cent., which required the application of a point load of 26¼ tons. The maximum deflection recorded in the case of one beam was ½ in., and on the other $\frac{9}{16}$ in. In both cases there was no permanent deflection, and the beams returned to their original camber after removal of the test load. There was no sign of cracking during the test. These and all other beams were manufactured at the L.M.S.R. Pre-Cast Concrete Depot at Newton Heath.

The Operating Department was unable to agree to any track possessions except at week-ends, and so it was decided that, to enable the new piers to be built during the week without interfering with traffic, a temporary structure should be erected to carry it. This consisted of military-type steel trestles supporting steel girders. When the piers had been completed, a portion of the temporary deck was removed and replaced with the new beams during week-end possessions. The original schedule provided for the placing of the new deck to be carried out in four separate operations, the units in two spans on one road to be dealt with in each operation. The first two operations were carried out as scheduled, but it was possible to carry out the remaining two operations in one occupation.

When the units had been placed in position with cranes, the transverse tie rods were inserted in the holes provided in the top flange, and, after the grout between the units had been taken up, these were stressed by operation of the nuts, using a calibrated tension spanner. The ballast then was placed in position, the new track laid and coupled up, and the bridge brought back into traffic.

The design and construction work were carried out under the supervision of Mr. W. K. Wallace, Chief Civil Engineer, and the units were manufactured by his department in the company's depot. The Pre-Stressed Concrete Co. Ltd. acted as consultant for the design of the beams, and the construction of the new piers and erection of the superstructure were entrusted to Leonard Fairclough Limited.

Beam being placed in position showing camber due to pre-stress



Elevation of Adam Viaduct from the north-west

Great Northern "Empire Builder" Streamline Train

Each passenger has a leg rest

A combined coffee shop and lounge

The lounge car of the new "Empire Builder" streamline train, placed in service on the Great Northern and Burlington lines, U.S.A., for transcontinental service between Chicago and Seattle-Portland

RAILWAY NEWS SECTION

PERSONAL

Mr. A. G. Hall, General Manager, North Western Railway, India, has been appointed Director General of Railways, Pakistan, the comparative post to that of Chief Commissioner of Railways, India.

Mr. Mervyn F. Ryan relinquished his position as General Manager of the Buenos Ayres & Pacific Railway from August 15; he will continue to be a Director of the B.A. & P.R., and a member of the Local Board. Mr. F. B. Lowry succeeds Mr. Ryan as General Manager.

As from July 1, Mr. J. E. Sandham, Engineer-in-Chief, Buenos Aires Great Southern and Buenos Aires Western Railways, succeeded Mr. H. N. Anderson in the position of General Manager, Buenos Aires Great Southern and Buenos Aires Western Railways, who retired on June 30.

Mr. R. Antony Beckett, a member of the board of Beckett, Laycock & Watkinson Limited, and a Director of Alfred Beckett & Sons Limited, has been appointed Assistant Managing Director of Beckett, Laycock & Watkinson Limited.

INSTITUTE OF TRANSPORT METROPOLITAN GRADUATE & STUDENT SOCIETY

At the annual general meeting of the Institute of Transport Metropolitan Graduate & Student Society on September 16, the following Officers and Members of Committee were elected to take office on October 1 next: Chairman, Mr. J. F. Parke (*Modern Transport*); Vice-Chairmen, Mr. E. R. Woollatt (G.W.R.), Mr. A. F. Wallis (Southern Railway), Mr. H. Emery (Ministry of Transport); Honorary Secretary, Mr. D. G. Sofio (Mansion House Association); Honorary Treasurer, Mr. H. G. M. Viney (L.P.T.B.).

Members of Committee: L.P.T.B., Messrs. A. R. Palser, R. S. Turnbull, A. E. Nicholls; L.M.S.R., Messrs. D. Wilding, L. G. Chamberlain; L.N.E.R., Messrs. F. G. Turner, M. C. Munton; G.W.R., Mr. G. S. Williams; Southern Railway, Mr. J. P. Davies; Road Transport, Messrs. F. G. Spindler, H. T. Longman, P. O. Wheatley; Shipping, Mr. A. M. Lutterloch; Commercial, etc., Messrs. J. O. Wood, C. H. E. Crocker, G. R. Bower.

Honorary Auditors: Messrs. C. A. Butts (Ministry of Supply), J. E. Skegg (L.P.T.B.).

Mr. Castleman, Chairman of the Metropolitan Section of the Institute, was present, and wished the graduates and students a successful future, and he hoped that they would keep up the high traditions of the Society.

It is notified in *The London Gazette* of September 16, under the heading of Territorial Army: Royal Engineers, that Captain (War Substantive Major) K. Brinsmead, D.S.O., has been promoted Major.

Mr. T. W. Royle, C.V.O., M.B.E., M.Inst.T., who takes office on October 1 as President of the Institute of Transport for 1947-48, is a Vice-President of the L.M.S.R. He joined the Lancashire & Yorkshire Railway in 1898, and was employed in the Passenger Department; subsequently he was transferred to the personal staff of the Passenger Superintendent. In October, 1914, he was appointed Confidential Assistant to the Superintendent of the Line in connection with the Railway Executive Committee. For his services rendered during the war of 1914-18 he was made an M.B.E. In February, 1919, he was appointed Assistant Superintendent of the Line, Lancashire & Yorkshire Railway, and, at the time of the amalgamation of that line with the London & North Western Railway, he became Assistant Divisional General Superintendent, Northern Division, of the latter. When the L.M.S.R. was formed in 1923, Mr. Royle was designated Assistant General Superintendent, Western Division, and in the next year he became Divisional Superintendent, Manchester. His title from 1929 to 1932 was Divisional Superintendent of Operation, Manchester. In the latter year he was appointed Assistant Chief Commercial Manager. Mr. Royle was made Chief Assistant Commercial Manager in 1935, and held that position until his appointment as Chief Operating Manager in June, 1938. He became a Vice-President in August, 1944. At the end of last year Mr. Royle was appointed, with Mr. O. V. Bulleid, Chief Mechanical Engineer, Southern Railway, to investigate railway operation to ensure the utmost fluidity throughout the railway system, and to see that capacity both of existing rolling stock and of the workshops was used to the best advantage. Mr. Royle is a Foundation Member of the Institute of Transport; served as an Ordinary Member of the Council, 1937-40; and has been a Vice-President of the Institute since 1944, having served on the Membership & Examinations, the Finance, and the Examinations Committees. His contributions to the *Proceedings* of the Institute include papers on "Modern Methods of Handling Goods at Railway Stations," and "Education for Transport." During the past two years Mr. Royle has visited many of the branches of the Institute to discuss with their members and local education officials the problems of transport education. He was made a C.V.O. in 1944.

Mr. T. W. Royle

President, Institute of Transport, for 1947-48

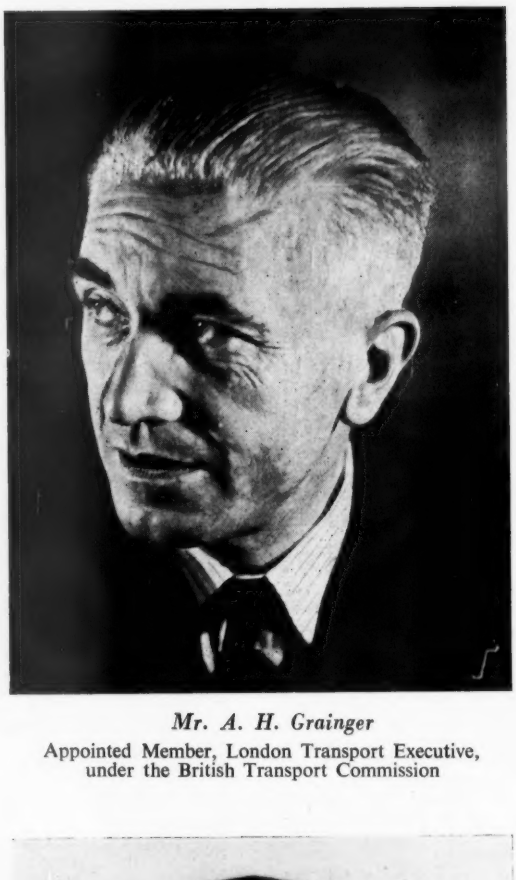
Mr. John Cliff, a member of, and Executive Officer for Staff & Staff Welfare to the London Passenger Transport Board, who has been appointed a full-time member of the London Transport Executive under the British Transport Commission, was associated for a number of years with the trade union side of transport. In 1919 Mr. Cliff was appointed Joint Secretary of the National Joint Industrial Council of the Tramways Industry, and in 1924 became Assistant General Secretary of the Transport and General Workers' Union. In 1933, on the formation of London Transport, he was appointed a part-time member of the Board for a term of five years, which appointment was renewed in 1938 and 1943. During this period he undertook various duties associated with staff matters and the conditions of service of the various staffs transferred to the board, and in 1939 was made head of the staff department. Mr. Cliff is an Alderman and was Chairman of the London County Council in 1946-47. He was a member of the Royal Commission on Labour in India, 1929, and is a member of the London Regional Advisory Council for Juvenile Employment. Mr. Cliff is an Associate of the Institute of Transport. In 1940 he became Executive Officer for Staff & Staff Welfare, and in March, 1945, was appointed a representative of the London Passenger Transport Board on the standing joint committee of the Board and the four main-line railways.

Mr. A. H. Grainger, Solicitor to the London Passenger Transport Board, who has been appointed a full-time member of the London Transport Executive under the British Transport Commission, was born in 1897 and educated at the Regent Street Polytechnic. He joined the Traffic Department of the Metropolitan Railway in 1913, and in 1914 was transferred to the Solicitor's Office. Mr. Grainger en-

[Photo] [Lafayette

Mr. John Cliff

Appointed Member, London Transport Executive, under the British Transport Commission



Mr. A. H. Grainger

Appointed Member, London Transport Executive, under the British Transport Commission

Mr. L. C. Hawkins

Appointed Member, London Transport Executive, under the British Transport Commission

Mr. A. B. B. Valentine

Appointed Member, London Transport Executive, under the British Transport Commission

listed in the Middlesex Regiment in 1917, served in France, and after demobilisation in 1919, he rejoined the Solicitor's Office, Metropolitan Railway. He was appointed Personal Assistant to the Solicitor of the Metropolitan Railway in 1923, and articled to the Solicitor in 1924. In 1929, he was appointed Managing Clerk of the Solicitor's Office, and an Assistant Solicitor of the Metropolitan Railway in 1930. When the L.P.T.B. was formed in 1933, Mr. Grainger was appointed Assistant Solicitor (General), and in 1937 Solicitor (General). From 1943 to 1945 he directly assisted the Chairman of the Board on matters of administration, and was appointed Solicitor to the L.P.T.B. in 1945.

Mr. Leonard Cecil Hawkins, M.Inst.T., Comptroller to the London Passenger Transport Board, who has been appointed a full-time member of the London Transport Executive, under the British Transport Commission, was born in 1897, served in the 1914-18 war with the 37th/10th Royal Fusiliers, and saw active service in France. In 1917 he joined the audit staff of Messrs. Deloitte, Plender, Griffiths & Company, and qualified with honours, as an Incorporated Accountant; he was admitted to membership of the Society of Incorporated Accountants & Auditors in 1926 and is now a Member of the Council. In 1929 he entered the service of the Underground group of companies and was appointed Assistant Statistical Officer in 1931. On the formation of the Board in 1933 he was made Assistant to the Comptroller & Accountant, and in 1939 became Chief Accountant. In 1940 Mr. Hawkins was made Comptroller and head of the department which deals with accounting, financial, and statistical work. In addition to his normal duties, he was Joint General Manager of the L.P.T.B. organisation for the production of Halifax bombers during the war.

Mr. A. B. B. Valentine, M.Inst.T., Operating Manager (Railways), London Passenger Transport Board, who has been appointed a full-time member of the London Transport Executive under the British Transport Commission, was born in December, 1899. Mr. Valentine was educated at Highgate School, and at Oxford, where he was a scholar of Worcester College, and took an honours degree in 1922. In March, 1928, he joined the Underground group of companies and was engaged for a short time on publicity work, until he became an assistant in the office of the late Mr. Frank Pick, then Managing Director. He was Mr. Pick's senior personal assistant when the L.P.T.B. was formed, and remained in that position until 1936. Mr. Valentine was Fares Officer of the Board from 1936 to 1939, Commercial Officer from 1939 to 1943, and Chief Supplies Officer until 1946 when he was appointed Chief Commercial Officer. As from July 1, 1946, he succeeded Mr. Evan Evans as Operating Manager (Railways). He is a past member of the Council of the Institute of Transport.

Mr. A. L. Mackillop, Director & Joint General Manager of C.A.V. Limited, is retiring at the end of September after 17 years' service.

Mr. T. B. Welch, Chief Mechanical Engineer, Nigerian Railway, is at present in Engand, on leave.

Mr. R. G. Crowther has been elected Chairman of the Road Panel of the Yorkshire Road-Rail Regional Conference for the ensuing year.

Mr. K. Brinsmead, Acting Permanent Way Engineer (Railways), L.P.T.B., has been confirmed in this position.

We regret to record the death of Mr. J. R. Garner, Managing Director, Howell & Co. Ltd., on September 21.

We regret to record the death on September 22, at the age of 76, of Mr. T. Gregson, M.B.E., who was Chief Mechanical Engineer, North Western Railway, India, from 1920 until his retirement in 1925.

Gloucester Railway Carriage & Wagon Co. Ltd.

The ordinary general meeting of the Gloucester Railway Carriage & Wagon Co. Ltd. was held in Gloucester on September 23, Sir Leslie Boyce, Chairman & Managing Director of the company, presiding.

The Chairman, in moving the adoption of the report and accounts, said that the final balance of profit for the year, after providing for taxation, depreciation, and all other revenue charges, and after bringing in the net dividends received from the subsidiaries, was £68,748, compared with £67,778 for the previous year. By adding £15,889 brought forward from last year to the profit of £68,748, there was a disposable balance of £84,637, which the directors recommended should be appropriated by the payment of a similar dividend to that of last year, namely, 15 per cent., less tax at 9s. in the £; by placing a further £25,000 to reserve, thus raising it to £325,000; and by increasing the amount carried forward from £15,889 to £16,324.

In the past, an important part of the revenue of the company had been derived from the hiring of the fleet of privately-owned coal wagons which now belonged to their wholly owned subsidiary, the Gloucester Wagon Hiring Co. Ltd. These wagons had been requisitioned by the Government since September 3, 1939, and would continue to be the subject of requisition until they were expropriated finally as the result of the passing of the Transport Act, 1947, which received the Royal Assent on August 6 last. Under the provisions of that Act, the property in those wagons would vest in the Transport Commission as from January 1 next. He was glad to say that, as the result of negotiations with the Ministry of Transport, the amount of compensation to be received for the wagons, though not as much as it should be, was considerably greater than was contemplated in the Bill when it was originally brought before the House of Commons.

At their last meeting, the Chairman had referred to the steps that had been taken to mechanise the brake block department of their other subsidiary, the Gloucester Foundry Limited. The process of modernisation now had been extended to other departments, and the principal moulding shop had been derequisitioned by the Admiralty. The foundry's order book was in a very satisfactory state, and during its financial year to December 31 last, both its output of high quality castings and the profits were considerably above those of the previous year. This progress was being well maintained.

During the year under review the issued capital of Wagon Repairs Limited, in which the company had a large holding, was converted into stock, and on June 18 last the Stock Exchange Council granted leave to deal in the ordinary stock, which was transferable in units of 5s. That company, which occupied an unrivalled position in the repairing industry, had another successful year, during which it registered the record output of 637,500 repaired railway vehicles of all types, thus making a most outstanding contribution to the transport of coal when it was most needed. They were maintaining an output which was the maximum possible with the materials at their disposal, but which should be at least double what it was. As they might naturally surmise, in a large works with well-balanced shops such as theirs, many different types of railway vehicles were constructed simultaneously; yet there was hardly a contract in their current production programme which had not been, and was not being, held up by the lack of some essential material. They were pressing continually their suppliers for deliveries, but they were finding great difficulty in keeping even their unsatisfactory delivery promises because, in their turn, they also were unable to obtain the raw materials required by them.

In the past the Chairman usually had been in a position to give a reasonable indication of what the result of the current year's trading was likely to be; but, in the circumstances he must refrain from attempting to make any forecast regarding the immediate future. They had many large orders from overseas railways and were in an ideal position to make a major contribution to the country's much needed exports in the course of the next three vital years.

With an adequate supply of material, they could employ at least 50 per cent. more workmen that at present, but it would be useless to apply for this extra labour before they could employ it. Added to these were the two further considerations to be taken into account, namely, that both their subsidiary, the Gloucester Foundry Limited, and their associated company, Wagon Repairs Limited, were making highly satisfactory progress.

The report and accounts were unanimously adopted.

ELECTRIC TRACTION ON THE SOUTHERN RAILWAY.—On November 6 Mr. C. M. Cock, Chief Electrical Engineer, Southern Railway, will deliver a paper on "Electric Traction on the Southern Railway" before the Institution of Electrical Engineers. The meeting will take place at 5.30 p.m. at the headquarters of the Institution, Savoy Place, W.C.2.

COUNCIL OF INDUSTRIAL DESIGN.—In the second annual report of the Council of Industrial Design, it is stated that, on an average, about 100 requests for information on design and the work of the council in general are dealt with every month. Full use has been made of the facilities offered by the Central Office of Information for the distribution overseas of particulars concerning British industrial design. Also, following a meeting with representatives of the British Engineers' Association and the British Electrical & Allied Manufacturers' Association, a design committee has been formed, leading members of the engineering and machine tool industries having agreed that the factor of design, in a sense wider than merely technical, played an important part in the sale and use of mnay types of producer goods. Copies of the report may be obtained from H.M. Stationery Office, York House, Kingsway, London, W.C.2, or through any bookseller, price 1s.

Gas Turbine Research at Whetstone

On September 17 a party of Press representatives visited the National Gas Turbine Establishment at Whetstone, near Leicester, and inspected the many branches of research work which are being carried on there in connection with the development of gas turbines for industrial and other purposes.

Mr. Arthur Woodburn, Joint-Parliamentary Secretary, Ministry of Supply, who also visited the establishment on this occasion, said that the Government was deeply interested in research. The Government-owned company, Power Jets (Research & Development) Limited, was associated with the establishment and performed a useful service by selling ideas for export in exchange for dollars.

Immediate Importance

The development of the jet engine had taken us a jump ahead, said Mr. Woodburn, of the rest of the world, and was of very immediate importance since atomic power was still 10 years away. In no country in the world was there such co-operation between public and private enterprise as in Great Britain, of which the National Gas Turbine Establishment was a typical example. Industry came to the establishment with its problems, gathered the results of research, and put them into practice.

There was much talk at the present time about incentives. This country had passed into the scientific age, and in science the primary incentive was interest in the work in hand; that was the best kind of incentive for workers of all kinds.

Dr. H. Roxbee Cox, Director of the National Gas Turbine Establishment, explained that three-quarters of the work done there was basic research, which was applicable equally to all forms of gas turbines. It was hoped that work would be undertaken later on the application of coal as a fuel for this type of motive power, but at the moment they were concentrating on the use of progressively cruder types of fuel oil.

Mr. H. Constant, Deputy-Director of the Research Division of the establishment at Pyestock, Hants., said he considered that the gas turbine had a wider field of application than any other prime mover. He believed that in course of time the bulk of aircraft, locomotives, and ships would be driven by gas turbines.

Examples of Experiments

During their inspection of the establishment, the visitors were shown the method of testing an axial compressor, which was driven for this purpose by a steam turbine. Electronic apparatus is used to record changes in blade dimensions and to measure air pressures. Tests can be carried out in conditions corresponding to altitudes of up to 35,000 ft. In the combustion section, work was seen in progress directed towards reducing the length of combustion chambers, with a consequent saving in the size and weight of gas turbine engines. Investigations are being made with a turbine having a water cooling system for the blades, which has been brought to Whetstone from a research establishment in Germany.

In the engine test house a demonstration was given of a turbine with a controllable thrust device at the jet nozzle, designed to permit of rapid change from full thrust to idling thrust, or *vice versa*, and intended specially for jet-propelled fighters operating from aircraft carriers. Another engine was exhibited with a re-heater, which burns fuel in the exhaust stream from the turbine in order to produce large increases in thrust at the nozzle for short periods. The party was shown the gas turbine with ducted fan augmenter which had been developed for a projected 1,000-m.p.h. mail-carrying aircraft. An experimental engine for turbine-propeller propulsion is being constructed in the workshops at the establishment.

Measurements are being carried out of the forces transmitted through the turbine supports when an engine is running. A unit, incorporating a small condenser with plates 2 sq. in. in area and separated by a gap of 1½ thousandths of an inch, is fitted in the position at which the forces are to be measured. The alteration in the spacing of the plates due to the forces from the engine, amounting to about 10^{-6} in., varies the frequency of a valve oscillator, and after suitable amplification records are displayed on a cathode ray tube. The vertical forces are found to vary between plus and minus 200 lb., and the axial forces between plus and minus 100 lb. Comparative research into the sound intensities from reciprocating and jet engines is carried out in the same section. It is found that the jets produce higher frequencies spreading over a wider band than piston-type engines.

The establishment has evolved a scheme for a 15,000-h.p. electric generating plant with alternators driven by gas turbines, and this was shown in model form. Two turbines are connected in series, the exhaust from the first passing to the second turbine through another combustion chamber, and being directed finally to the atmosphere through a heat exchanger. It is calculated that with such an installation there would be losses in the ducting equivalent to about 4,510 h.p.

Work in hand in the metallurgical section of the establishment includes precision casting of turbine blades, the blade on removal from the mould requiring only sand-blast treatment for completion, and no machining. It is hoped in due course to be able to produce turbine rotors complete with blades by a casting process.

L.N.E.R. Shenfield Electrification Progress

Despite shortages of skilled labour and materials, especially steel, progress continues to be made with the Liverpool Street and Fenchurch Street to Shenfield electrification scheme of the L.N.E.R. Most of the heavy engineering work is now completed. This has consisted chiefly of the construction of heavy retaining walls, new platforms, and bridge widenings, and includes the construction of a flyover viaduct at Ilford for carrying the suburban lines over the main lines. A certain amount of bridge reconstruction work remains to be carried out, and at several places the tracks still have to be lowered under some bridges to provide the additional clearance required for overhead electrical equipment.

With the introduction of the flyover at Ilford, considerable alterations to track routes between this point and Liverpool Street are necessary, particularly at Stratford, Bow Junction, and Bethnal Green; and the opportunity is being taken of simplifying the layout through junctions to permit of smoother and speedier running.

Several alterations were necessary at Bethnal Green, and these were completed after the replacement by London Transport Central Line tube trains of the L.N.E.R. Loughton service as between Liverpool Street and Leytonstone.

As a result of the re-arrangement of lines, the reconstruction of Stratford, Maryland, Forest Gate, and Manor Park stations has had to be undertaken. The proposals at Stratford involved the construction of an interchange station between the local lines and the Central Line tube tracks. Progress on the platform buildings at these stations is delayed because of shortage of materials. It is hoped, however, that those at Stratford and Maryland will be ready for use by the beginning of October, to coincide with the major traffic changeover. At the same time it is expected that the new booking offices will be opened. At both Forest Gate and Manor Park, temporary awnings and platform buildings will be provided to give passengers some shelter until the permanent structures are completed.

After the Ilford flyover has been brought into use on October 5, the largest and probably most difficult task that remains to be done is the re-arrangement of the track layout at Liverpool Street. This operation is planned in five major stages, each of four or more phases, and is likely to occupy a period of nearly twelve months, with full week-end working. The target date for Stage I is October 28 and zero hour will be 11 p.m., the work being closely related to other preliminary operations at Bethnal Green, Stratford, and Ilford.

The work involved calls for most careful planning and timing, the closest coordination of many phases of work, and the constant co-operation between the operating and engineering staffs so that the present services are kept running with a minimum of interference.

The continuous passing of trains during difficult engineering operations, for example, has called for the provision of over 50 look-out men to protect the contractors' staff at work, and more are still needed. Indeed, the work of the Chief Electrical Engineer's contractors has been hampered by the shortage of these men.

Nevertheless, during recent weeks 152 foundations for overhead equipment have been installed, and 175 masts and 134 bridge members erected. About 35 per cent. of the overhead structures needed now have been provided. Much of the work, particularly with regard to the signalling, is of a temporary nature to fit in with the changes taking place in the general track layout, and will remain until the final signalling comes into being.

Fleet of New Coaches

A fleet of 276 new coaches, forming 32 multiple-unit electric trains of modern design, is to be built. The completion date of the first coach cannot yet be stated, but the manufacture of the electrical equipment is well in hand and deliveries are expected to begin next October.

With the labour and materials position remaining so difficult, it is not possible to say with any degree of certainty the date the whole scheme will be finished. In fact, unless some improvement occurs during the next few months, it is quite likely that the present programme dates may have to be extended. Whatever happens, however, the L.N.E.R. will make every effort to press forward with the outstanding work with such resources as are placed at its disposal.

Increased Capacity of London Transport Central Line

It was announced by London Transport on September 23 that all trains on the Central Line, from Ealing and Greenford in the west to Leytonstone in the east, are to be increased in length from the present six cars to seven or eight cars. Most of the trains will be of seven cars, but there will be in addition 72 eight-car special formations for rush hours.

In addition to the lengthening of the trains, more peak-hour trains are to be run. They will increase the frequency of the service in each direction from 30 to 32 trains an hour. These increases will raise the total passenger-carrying capacity of the line by 22 per cent.

These improvements are to be brought into operation at the end of the year, as soon as the rebuilding of Wood Lane Station is completed. Wood Lane is the only remaining station on the Central Line where platforms are now too short to take seven- and eight-car trains. The use of 169 additional Underground cars on the line and the employment of 100 additional train staff is involved.

London Transport has planned the increases to meet the growth of traffic on the line. The recent extensions west from North Acton to Greenford and east from Liverpool Street to Stratford and Leytonstone, have created additional traffic on all sections of the Central Line. At the end of the year the line will be extended further from Leytonstone to Newbury Park and Woodford, which will bring a further influx of passengers.

Proposed Hump Yard for Montreal

Plans are being developed by the Canadian Pacific Railway for building in Montreal what will be the first hump marshalling yard with railbrakes in Canada. The yard will lead the way in the reduction of smoke nuisance on the Island of Montreal, for it will be provided with a steam power plant to give direct steaming facilities for locomotives in the 41-road engine shed. The date of beginning construction, and the extent of the facilities to be provided, will be influenced by the revenue outlook for the company.

The site chosen for the yard does not interfere with existing or proposed residential areas, and is in an area immediately adjacent to existing railway lines. Wagons coming off the hump will be guided by the control tower operators into any of the 40 classification roads. Electric operation will be used for setting points, regulating the cars and regulating the speed of wagons by means of railbrakes, making hand-brake operation unnecessary. The average of 2,000 to 2,500 wagons which arrive at and depart from Montreal terminals daily will be well within the capacity of the new yard.

Much transfer of wagons now required between Outremont, Sortin, and St. Luc will be eliminated, and eventually these yards will be abandoned, making available attractive sites for industrial expansion. The 15-track receiving yard will abolish delays due to yard congestion.

The fires of train engines will be extinguished on entering the yard, because the direct-steaming facilities will furnish engines with a charge of live steam from a central power plant just before their departure, and maintenance of steam pressure is not necessary while it is in the shop. Operations in the yard will be closely co-ordinated by telegraph, teleprinter, telephone, and loudspeaker systems. Floodlighting will put operations on the same basis at night as in daytime. Provisions for winter working include the use of electrically-heated points and steam pits for quick disposal of snow.

All incoming wagons will be inspected from a pit near the crest of the hump, in which car inspectors will be on duty. The under parts of the wagons will be floodlit brilliantly while passing over the pit. After trains are made up in the classification yard, they will be taken to an 18-track departure yard to be picked up by outgoing engines. The exit from the yard will be at Ballantyne Junction.

It is estimated that substantial savings in working costs will result from the centralisation of operations and the elimination of shunting at intermediate stations by proper placing of wagons on trains. In recent years the C.P.R. has arranged for the acquisition of vacant land in a rough "L" shape, from the northerly limit of the town of Hampstead southward to join the C.P.R. main line at Ballantyne Junction.

Careful planning of the yard in an area already containing many railway lines has taken into consideration provision for adjacent housing development, location of roadways to serve the new goods terminal, avoidance of level crossings, and the minimum disturbance, severance, or interference with neighbouring districts.

Railway Students' Association at Toton, L.M.S.R.

A party of 18 members of the Railway Students' Association (London School of Economics and Political Science) visited Toton Marshalling Yard, L.M.S.R., on September 20. Toton serves as a concentration point for wagons from the Nottinghamshire, Derbyshire, and Yorkshire coalfields, trains for the South, West, and Eastern Counties being formed in the up yard, and returning wagons being sorted for distribution to collieries and other users in the fully mechanised down yard. Coal trains for London are marshalled separately at Stanton Gate. The yards are alongside the Erewash Valley line of the Midland Division, a short distance north of Trent.

After inspecting the up gravitation yard, where between 2,800 and 3,500 wagons are being handled daily at the present time, the party proceeded to the down yard, the mechanisation of which was completed on May 30, 1939, (see our August 18, 1939, issue). Six diesel-electric shunters are stationed at Toton for propelling trains over the hump in this yard, and are capable of working for nearly a fortnight without refuelling, requiring only a 15-min. inspection daily. Apart from this saving in maintenance and fuelling time, the diesels improve on steam locomotive performance by their ability to handle trains of 70 wagons with ease, even in conditions of greasy rail.

The party was present in the hump room and control tower during the shunting of several trains, and saw one train of 46 wagons, divided into 37 cuts, disposed of in about 5 min. Approximately 3,000 wagons a day pass through the down yard at the present time. The record of the day's operations showed traffic arriving at an average rate of about 4 trains an hour, and during the visit there were opportunities of witnessing the method of handling those which arrive direct on the hump from the London direction by the high-level lines; and also trains from the West which run into the reception sidings off the low-level goods lines, and are shunted back on to the high-level approach by a hump-avoiding line before being propelled over the hump.

The first sets of points leading to the 35 down-yard sidings are operated by route-setting push buttons in the hump room, and a record of the number of wagons in each cut, with their destination siding, is transmitted simultaneously to the control tower, where the remaining points are set by means of thumb-switches on a track diagram. Also in the control tower are the operating levers for the four hydraulic railbrakes. As every train is dealt with, a record is kept of the number of cuts, number of wagons, and the time taken.

To conclude the visit, the party inspected the hydraulic pumping equipment for supplying the railbrakes; and the air compressors and relays associated with electro-pneumatic point operation. All this equipment, together with the amplifier for the extensive loudspeaker and microphone installation throughout the yard, is located in the control tower. Examination of the visitors' book at Toton emphasises the interest that has been taken in this modern mechanised yard by railway officers from all over the world; and also the extensive facilities granted by the L.M.S.R. for inspection of the yard by school and similar parties, and by interested individuals.

G.W.R. Standpipes for Refuelling with Oil

(*Concluded from page* 349)

of 4-in. dia. flexible hose, all glanded joints are eliminated, and the arm is made to swing not only through an angle of from 90 deg. to 110 deg. in the horizontal plane, but also approximately 20 deg. above and below the horizontal in the vertical plane.

The essential features of the standpipe are a fabricated plate base and the supporting column, at the top of which a simple bearing supports a trunnion bearing on which the swinging jib arm is carried. None of the foregoing features is used to enclose oil.

The oil is led up to the spout end of the jib arm from a fixed flange connection welded to the supporting column, and then, by means of the flexible hose previously mentioned, to a flange connection at the extremity of the jib. A handle is provided for the fireman's use when manipulating the jib over the tender top.

In order to ensure that the tender fuel tank is not over-filled, an electric light is provided on the extremity of the jib arm adjacent to the oil spout, the light itself being controlled automatically by a mercury switch which makes contact and illuminates the surface of the oil in the tank when the arm is depressed to or below the horizontal position, and breaks contact and switches off the light when the arm is swung back parallel with the track and raised to the normal position in which it is secured.

L.M.S.R. TO RESTORE BUFFET CARS.—Buffet cars are to be restored by the L.M.S.R. on the following weekday services with the introduction of the winter timetable on Monday, October 6: 2.30 p.m., Euston to Liverpool; 2.45 p.m., Euston to Manchester; 2 p.m., Liverpool to Euston; and 2.5 p.m., Manchester to Euston.

Southern Railway Home for Retired Employees

On Monday last, the first home for Southern Railway retired employees, their wives or widows, was opened officially at Woking, Surrey, and at the opening ceremony it was announced that plans are now being made to acquire further premises for a similar purpose in other parts of the country served by the Southern system.

The Woking home, situated only a few minutes' walk from the well-known Servants' Orphanage of the Southern Railway, will be administered by the Board of Management of the Orphanage, which sponsored the scheme in the first place, and it will be maintained largely by voluntary contributions from the staff.

In every respect the home is to be a real one, where the residents can enjoy the evening of their lives in the peace and comfort which they have so richly earned, and the whole atmosphere of the place is intended to be that of a quiet country hotel, completely removed from any suggestion of an institution. The house itself, which consists of two floors only, will accommodate 18 persons with a resident matron and cook and other staff to look after them, and it will be open daily to relatives and friends.

It stands in spacious wooded grounds which include a large lawn and flower and vegetable gardens. Partial central heating has been installed, and each of the ten bedrooms is fitted with a washbasin and hot and cold water. The lounge and smoking rooms, which have been comfortably furnished on modern lines, open on to a large conservatory, and the dining room is provided with a number of small tables to seat two or four persons.

In his introductory remarks before the opening ceremony, Mr. J. H. Chitty, Welfare Officer, Southern Railway, said that the present scheme was partially sponsored by the Board of Management of the Orphanage in 1945, and was entirely taken over by that Board in 1946, when Mr. A. G. Evershed, Secretary-Superintendent of the Orphanage, became Secretary. Mr. Evershed, indeed, had been one of the pioneers of the movement.

They had had many setbacks, but, thanks to the encouragement they had received from their Chairman, Colonel Eric Gore Browne, their General Manager, Sir Eustace Missenden, and all the officers of the company, the difficulties had been smoothed out, with the result that today they saw the first Southern Railway home for old people ready for use. They hoped there would be many more such homes to come.

In declaring the home open, Colonel Gore Browne said that, in doing so, one of the dreams of his life had come true. He thought it a good augury, moreover, that the first Southern Railway home for old people should be situated so near their orphanage, among whose young people they always found a very happy atmosphere.

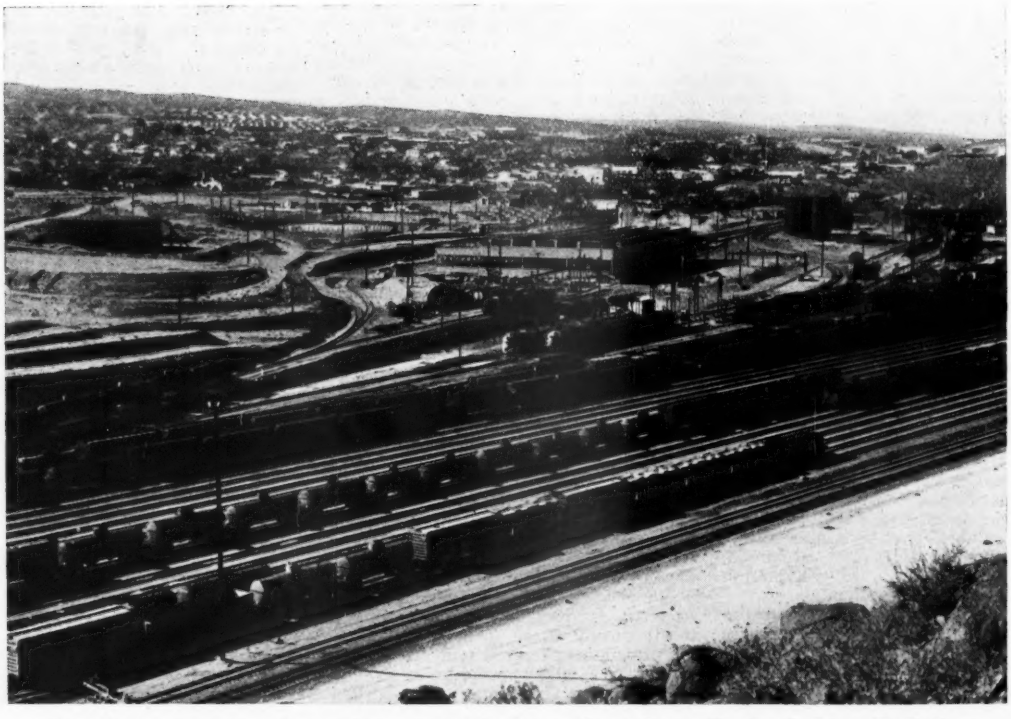
It had been universally agreed by the staff that the new home should be called Missenden House after their General Manager. Sir Eustace Missenden recently had been appointed Chairman of the Railway Executive under the British Transport Commission and they were very proud that a Southern Railway man had been chosen for such an important post.

Sir Eustace Missenden, replying, thanked the previous speakers for the kind things they had said about himself, and expressed the hope that all those who came to live in the new home would find peace and happiness. This might be the last occasion on which he would be able to address them as General Manager, and he would, therefore, like to pay a sincere tribute to Colonel Gore Browne for all that he had done for the Southern Railway during the past 18 years. Their Chairman at all times had been a great friend to the officers and staff.

With regard to the railways in general, before the war they were efficient, and nobody could deny that they met every call on them from September, 1939, to May, 1945, largely due to the fact that much money was ploughed back into the service. He was sure that, when the British Transport Commission took over on January 1, they would move cautiously, and so ensure that any changes made would result in improved methods and increased efficiency. Railway workers need have no anxiety about losing their jobs. They were all needed to make the British railways the best in the world.

The final speaker was Mr. G. T. Pheby, Chairman of the Board of Management, Southern Railway Servants' Orphanage, who said he was glad that so many officers of the company had come to the opening of the new home, which would meet a very real need. Much credit was due to the Secretary, Mr. A. G. Evershed, who had worked so hard for the success of the scheme, largely off his own bat. They were confident that railwaymen would not let them down in giving them the support they required.

Atchison, Topeka & Santa Fe Diesel Shop



New diesel maintenance shop at Barstow, California, on the Atchison, Topeka & Santa Fe Railway

ABSTRACTS OF RECENT PATENTS*

No. 576,388. Leaf Springs

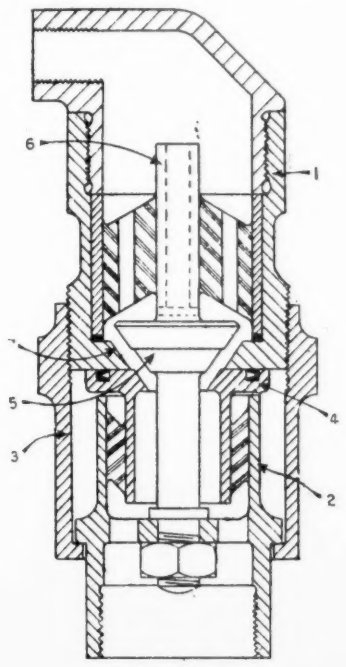
Toledo Woodhead Springs Limited, and F. Woodhead, both of Clifton Works, Neepsend Lane, Sheffield. (*Application date*: *April* 29, 1944).

The fatigue resistance of leaf springs is increased by rounding the corners between the tension face and the two sides, so as to remove any angle, and then work-hardening the tension surface and the rounded edges by repeated blows, as by shot blasting. It is not essential for the rounding of the edges to be done along the whole length of the spring, but it must be done along the more highly stressed portions.

No. 576,210. Self-Sealing Pipe Joints

P. E. Thomas, of 7, *Killister Gardens, Worcester Park, Surrey.* (*Application date*: *June* 12, 1944).

The two outer parts 1, 2 of a pipe coupling are drawn together by a nut 3, and at the same time the seating 4 is pressed away from its valve head 5, while the latter lifts the valve 6 off its seating 7,



R.G. 576,210/44

thereby providing through communication. The seating member 4 and valve 6 are located in their appropriate body members by flexible bonded rubber bushes. When the parts of the coupling are separated, the two valves are closed automatically on to their seatings.

No. 575,389. Axle Suspension

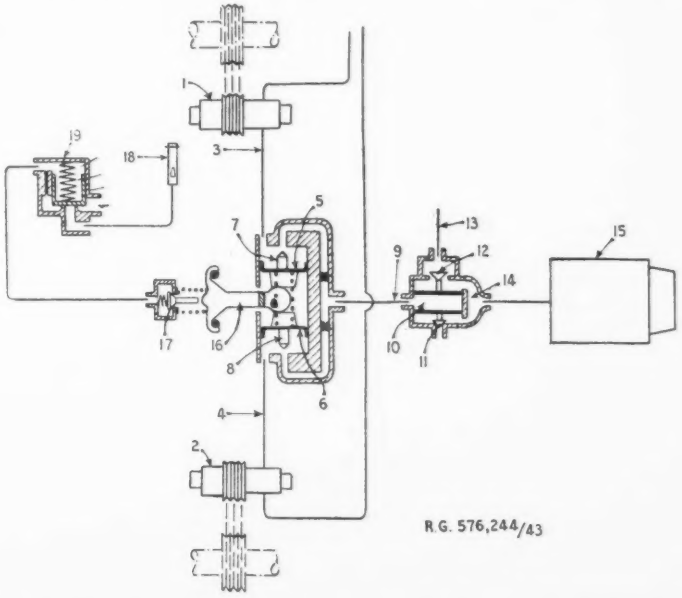
Ag. Brown, Boveri et Cie., of Baden, Switzerland. (*Convention date*: *December* 17, 1942).

In order to absorb transverse impacts, an axle bearing is not located in the usual vertical guides, but is carried on a bar attached to the bogie frame directly at one end, and through a transverse link at the other, all connections being made through resilient bushes. A suspension spring is fitted between the free end of the bar and the bogie frame. With this arrangement the resiliently-connected link absorbs transverse thrusts.

No. 576,244. Braking Control

Westinghouse Brake & Signal Co. Ltd., A. G. Kershaw and A. W. Simmons, all of 82, *York Way, London,* N.1. (*Application date*: *November* 25, 1943).

In a pressure braking system, the braking effort is made proportional to the speed of the train by centrifugal pressure regulators 1 and 2, driven from an axle, or electrically-controlled valves operated by electric generators. Either of these arrangements produces a pressure in pipes 3, 4, proportional to the speed of the train, which acts on pistons 5, 6 to open valves 7, 8 and communicates this pressure through pipe 9 to chamber 10. The pressure tends to close the exhaust valve



R.G. 576,244/43

11 and open inlet valve 12, so that the main control valve is opened to admit pressure through pipe 13, and the pressure which can build up in chamber 14, and consequently in the brake cylinder 15, is also proportional to the speed.

Two regulators 1, 2 are employed as a safety measure, and if one fails, its valve 7, 8 closes while the other remains effective. The consequent movement of the pistons 5, 6 tilts lever 16 so as to open valve 17 and cause a warning whistle 18 to sound, by means of the controlling valve 19.

No. 574,208. Diesel-Electric Locomotive Cooling

H. G. McClean, of Willow Brook, Combe Rise, Shenfield, Essex, and Crompton Parkinson Limited, of Gurseley Road, Leeds, Yorks. (*Application date*: *January* 17, 1944).

In a diesel-electric locomotive the cooling air for the generator is divided into two streams, either by two fans or by appropriately shaped ducts, one passing through the centre of the armature and the other through the field windings and armature periphery. The former stream of air is comparatively cool, and is passed on to cool the traction motors, while the hotter air is passed either to the cab for heating or else passed direct to the atmosphere.

No. 576,772. Pipe Joints

R. C. S. Jamie, of Benholm, Pathlow, and Hunt & Turner Limited, of Warwick Works, Alma Street, Aston, Birmingham, 6. (*Application date*: *November* 22, 1944).

The join between two rigid pipes is covered by two short lengths of flexible tube placed one outside the other and held by hose clamps to each pipe. The space between the two tubes is inflated by air supplied through a valve in the outer one, so that the air pressure holds the inner tube securely against the surfaces of the pipes and maintains a fluid-tight joint. Where a flexible hose is fitted to a rigid pipe, the inner coupling tube may be omitted. A slightly different arrangement is described in Specification No. 576,773 by the same applicants, in which the inner tube is cut in the plane of the adjacent pipe-ends, and the pressure of fluid within the pipes enters the space between the two tubes and forces the inner one against the pipes to make a sound joint.

Complete Specifications Accepted

576,691. Macbeth, C. Flexible power transmission couplings.

576,746. Ford, R. J. Turbine units.

576,790. Standard Telephones & Cables Limited, Bowsher, E. A., d'Assis-Fonseca, H. M., and Ward, H. J. Electric signalling systems.

576,863. Armstrong, J. J. V. Detachable pipe couplings.

576,867. Main, D. W. Self-sealing pipe coupling.

576,901. Westinghouse Brake & Signal Co. Ltd., and Coley, J. P. Track signalling.

577,039. Power Jets Limited, Joyce, J. R., and the Anglo-Saxon Petroleum Co. Ltd. Fuel burners for turbines.

* These abridgments of recently published specifications are specially compiled for *The Railway Gazette*, by permission of the Controller of His Majesty's Stationery Office. Full specifications can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s. each

Notes and News

L.M.S.R. "Patriot" Class Engine Named.—L.M.S.R. "Patriot" class 4-6-0 express passenger locomotive No. 5505 has been named *The Royal Army Ordnance Corps,* and fitted with plaques of the Corps crest, the gift of the R.A.O.C.

Canadian Pacific Railway Company Dividend.—At a meeting of the board of directors held in Montreal on September 8, a dividend of 2 per cent. (50 cents per share) on the ordinary capital stock in respect of the year 1947 was declared payable in Canadian funds on November 1, 1947, to shareholders of record at 3 p.m. on September 22, 1947.

L.M.S.R. Seat Reservations.—When the L.M.S.R. winter timetables come into force on October 6, seat reservation facilities will be restored on 21 long-distance expresses to and from Euston. Among the trains concerned will be the 10 a.m. to Glasgow and Perth; 1 p.m. to Glasgow; 5.45 to Liverpool Lime Street and Southport; 6 p.m. to Manchester; and 8.45 p.m. to Holyhead.

Permanent Way Films for London Transport.—In his inaugural address as President of the Regent Advertising Club on September 17 (see also page 339), Mr. J. H. Brebner, Chief Public Relations & Publicity Officer of the London Passenger Transport Board, announced the forthcoming use by the Board of cinema films to facilitate permanent way inspection. He said that a unit had been commissioned to produce a film on stretches of the Board's system where it was desired to make improvements, and in this way it would be possible for engineers to view the sections concerned and assess the work to be done without the necessity of making constant visits of inspection, and being absent from their duties for long periods.

Stockholm-Berlin Through Trains.—An agreement concluded between Sweden and Germany recently provides for the immediate resumption of through passenger services between Stockholm and Berlin, *via* Trelleborg and Sassnitz. For the time being, the traffic will be limited to one service each way a week. Passenger and goods services between Sweden and Germany were suspended early in 1945. Goods traffic, however, was resumed in March this year, using the Trelleborg-Warnemünde ferry route, as the result of an agreement signed at Berlin between a Swedish railway delegation and the Soviet transport authorities in the Russian-occupied zone of Germany. One goods train a day has been permitted to and from countries in Eastern Europe and the Balkans through the Russian zone.

Level-Crossing Accident near Bridlington, L.N.E.R.—An army lorry conveying German prisoners of war and their escort crashed through the level-crossing gates at Burton Agnes Station, L.N.E.R., on September 17, and collided with an express from Hull to Bridlington. Ten of the German prisoners and two British sergeants accompanying them were killed; all the 17 injured were German prisoners.

G.W.R. Preparations for Carriage Heating.—Swindon has completed the overhaul and testing of 18,000 steam-heating pipes, which have been used on G.W.R. long-distance night trains from Monday (September 22), and will be in operation on all other trains from October 6, when the winter service comes into operation. The pipes are being fitted to the coaches at depots and works throughout the system.

Powell Duffryn Limited.—The net profit for the year ended March 31, 1947, is £633,735 (previous year £709,955), after provision for depreciation and obsolescence, £161,159 (last year £270,316); and taxation, £412,000 (last year £380,000). In addition, an amount of £350,000 released from taxation reserves is brought to the credit of profit and loss appropriation account (last year £375,000). The directors recommend the payment of a final dividend of 5 per cent., less tax, on the ordinary stock, making a total distribution for the year of 8 per cent., less tax. In addition, a bonus of 2 per cent., less tax, is recommended on the £9,660,471 ordinary stock, out of the amount released from taxation reserves and brought to the credit of profit and loss appropriation account. The amount at the credit of profit and loss appropriation account to be carried forward to 1947-48 is £828,251, as against £469,892 brought in. Payment of the dividend and bonus will be made on November 18, 1947, to holders registered on the books of the company at the close of the business on September 23, 1947. The annual general meeting of the company will be held on October 22.

Heavier Rails for Pennsylvania Railroad.—Reuters reports from Philadelphia that an order for 141,000 tons of new steel rail, costing approximately $7,896,000,

Thornycroft Tractor-Trailer Outfits for Brazil

One of a fleet of 110 *"Sturdy" tractor-trailer outfits supplied to the Sao Paulo (Brazilian) Railway Company by John I. Thornycroft & Co. Ltd.*

British and Irish Railway Stocks and Shares

Stocks	Highest 1946	Lowest 1946	Prices Sept. 23, 1947	Prices Rise Fall
G.W.R.				
Cons. Ord.	61½	54½	52	—
5% Con. Pref. ...	126½	107	112½	—
5% Red. Pref. (1950)	106½	102½	98½	—
5% Rt. Charge ...	140½	122½	126½	—
5% Cons. Guar. ...	137½	118½	123½	— 1
4% Deb.	129½	106	117	— ½
4½% Deb.	129½	107	117½	— 1
4½% Deb.	130½	114	118½	— 1
5% Deb.	142½	125	130½	—
2½% Deb.	95½	81½	88½	—
L.M.S.R.				
Ord.	30½	26½	26½	—
4% Pref. (1923) ...	64	52½	55½	—
4% Pref.	86	75½	75½	—
5% Red. Pref. (1955)	105½	97	95½	— 1
4% Guar.	108½	100	96	— ½
4% Deb.	120	103	107	— ½
5% Red. Deb. (1952)	108½	105½	101½	—
L.N.E.R.				
5% Pref. Ord. ...	7	5	6½	— ½
Def. Ord.	3½	2½	3½	—
4% First Pref. ...	59½	50½	51½	—
4% Second Pref. ...	29½	25¾	26	—
5% Red. Pref. (1955)	104	97	93½	—
4% First Guar. ...	107	98	95½	—
4% Second Guar. ...	101	90	89½	—
3% Deb.	104	87½	93	— 1½
4% Deb.	119½	102½	107	—
4½% Sinking Fund Red. Deb.	107½	101½	98½	— 1
SOUTHERN				
Pref. Ord.	79½	70	69	— ½
Def. Ord.	24	19½	21	— ¾
5% Pref.	125½	107	111½	—
5% Red. Pref. (1964)	115½	106½	104½	— 1
5% Guar. Pref. ...	137½	119	123½	— 1
5% Red. Guar. Pref. (1957)	115½	107½	103½	— 1
4% Deb.	129½	105½	117	— ½
5% Deb.	139½	125½*	127½	— 1
4% Red. Deb. (1962-67)	113½	104½	102½	— 1
4% Red. Deb. (1970-80)	115½	104½	104½	— 1
FORTH BRIDGE				
4% Deb.	109	103	98½	— 1
4% Guar.	105	102	94½	— 1
L.P.T.B.				
4½ "A"	133½	120½	120½	— 1
5% "A"	142½	130½	128½	— 1
3% Guar. (1967-72)...	108	98½	96	+ ½
5% "B"	128½	117½	116½	— 1
"C"	64½	56½	59½	—
MERSEY				
Ord.	34	30	32½	—
3% Perp. Pref. ...	76	69	68½	—
4% Perp. Deb. ...	117½	103	106	— 1
3% Perp. Deb. ...	98	81	88½	— 1
IRELAND*				
BELFAST & C.D.				
Ord.	8⅛	6	7½	—
G. NORTHERN				
Ord.	41⅞	30½	27	—
Pref.	63⅜	52	42½	—
Guar....	97½	78½	72	—
Deb.	107	97½	95	— 1½
IRISH TRANSPORT				
Common	19/2½	16/9	13/6	—
3% Deb.	107	100	101	+ 5

* Latest available quotation

has been placed by the Pennsylvania Railroad with three steel companies. The rail is a newly-designed, heavier type developed after extensive study by Pennsylvania engineering staff. It will be for 1948 delivery, and will replace rail of lighter sections now in use. Of the total orders, 70,500 tons will be supplied by the Carnegie-Illinois Steel Corporation, 62,000 tons by the Bethlehem Steel Company, and 8,500 tons by the Inland Steel Company.

Eastern Punjab Precedence for Refugees.—The Eastern Punjab Railway Administration announced that it was discontinuing all ordinary mail, express, and passenger trains from midnight on September 20. The only exception was a limited service on the Ambala—Kalka, and Kalka—Simla sections, linking Simla, the Eastern Punjab capital, with the main Delhi—Amritsar—Lahore line. The announcement explained that the railway had made an all-out effort to expedite transport of refugees between India and Pakistan, as well as within India. It had transported 40,000 refugees on September 19 and 20, and had been called on by the authorities to step up this effort.

Damage to "Devon Belle" and "Atlantic Coast Express."—The steel train nameplate on the locomotive hauling the up "Devon Belle" of the Southern Railway became loose when the train was between Honiton and Sidmouth Junction on September 22, and struck the locomotive of the "Atlantic Coast Express," which was travelling in the westbound direction. Parts of the streamline cowling on the locomotive of the "Atlantic Coast Express" were broken off, and smashed the windows of the leading coaches in both trains. Seven passengers were hurt by flying glass, but only one needed hospital treatment and was not detained. After the accident seven damaged coaches were removed from the "Atlantic Coast Express," and two from the "Devon Belle," which arrived at Waterloo 45 min. late.

Permanent Way Institution Visit.—On Saturday, September 20, members of the London Section of the Permanent Way Institution visited the Kent & East Sussex Railway, and the Romney Hythe & Dymchurch Railway. Through the courtesy of Mr. W. H. Austen, Manager & Engineer of the K. & E.S.R., who accompanied the party, a special train was provided for the journey from Robertsbridge to Headcorn, and opportunities were afforded for inspecting the stations and permanent way. At Hythe, the party was met by Mr. J. T. Holder, General Manager of the R.H. & D.R., and conveyed to Dungeness in a special train of 15 coaches. On the return journey, the 4-6-2 locomotive, *Green Goddess*, made one of the fastest runs ever recorded on this 15-in. gauge railway by covering 8¼ miles from New Romney to Hythe in 20 min.

Carlisle Citadel Station Centenary.—To mark the centenary of opening of Carlisle Citadel Station (September 1, 1847) an exhibition was held in the Stationmaster's Office, Carlisle, from September 1 to 6. The exhibition, which present circumstances caused to be on a restricted scale, attracted considerable interest in the city, and was visited by approximately 3,000 persons during the week. Models of various locomotives were on view, including one of the first locomotives to run between Stockton and Darlington. Early timetables, books, photographs, etc., of railway interest were also on display. A fine old painting of the Royal Train conveying the young Queen Victoria, accompanied by her husband, the Prince Consort, standing at the platform in the Citadel Station in 1848 *en route* from Balmoral to their home in the South occupied a prominent position in the exhibition. On that occasion the Royal Party stopped at Carlisle for lunch, and this was the first long train journey they had ever made. The Carlisle centenary celebrations were arranged by an Executive Committee under the chairmanship of Mr. Ronald Clarke, District Goods & Passenger Manager, L.M.S.R., and considerable credit is due to this committee for the enterprise shown. The exhibits were borrowed from a number of private local collections. Any surplus which may remain after meeting necessary expenses will be handed over to the Railway Benevolent Institution.

New Signal Company for Holland.—Reuters reports from The Hague that the General Railway Signal Company, of Rochester, New York, and Philips Lamps Limited, of Eindhoven, Holland, have formed a new company to produce railway signals in Holland. The Netherlands Railways are co-operating in the enterprise. Orders placed by the Netherlands Railways with the American company have been transferred to the new Dutch concern.

C.P.R. Traffic Returns.—The Canadian Pacific Railway has announced that henceforth weekly statements of approximate earnings from railway operations will not be issued. Such data, unaccompanied by statistics showing operating expenses and net earnings, do not reflect the true position of the company, and are open to misconstruction by shareholders and other interested parties. Monthly satements will be issued as heretofore, showing gross earnings, working expenses, and net revenue.

G.W.R. Arts & Crafts Exhibition.—Railwaymen of all grades will compete in the G.W.R. Arts & Crafts Exhibition, which is being held at Swindon from October 6 to 11. Over 250 entries have been received for the painting and sketching classes, which are still the most popular; and one retired employee of 80, who believes that there is no retiring age from art, has submitted six paintings to this year's exhibition. Entries generally this year are of a higher standard than previously. This is attributed to the fact that unusual wartime occupations have taught many people to use their hands skilfully.

Linking Chile and Argentina.—A Reuter report from Antofagasta, Chile, states that the Antofagasta-Salta section of the 1,200-mile railway linking the Pacific Coast of Chile and the Atlantic Coast of Argentina will be opened by President Juan Domingo Peron (Argentina) and President Gabriel Gouzalez Videla (Chile) in February next year. Work on completing this last section of the line was held up during the war through lack of materials, but builders now are making an all-out effort to complete the job by the end of the year. Completion of the railway will enable products from North Argentina to be transported to the modern port of Antofagasta for shipment abroad, as well as opening up a new market for Argentine exports to North Chile.

Doncaster, L.N.E.R., Accident Inquest Verdict.—A verdict of accidental death was returned at the inquest on the 18 victims of the collision outside Doncaster Station, L.N.E.R., on August 9 (see our August 15 issue). The accident occurred when the 1.25 p.m. express from Kings Cross was admitted to a section in which the preceding 1.10 p.m. train was standing at a signal, waiting to draw into Doncaster Station. At the inquest, the signalman at Balby Junction admitted responsibility for the accident, saying he remembered the 1.10 p.m. passing his box, but accepted the 1.25 p.m. with the intention of diverting it to the goods line, which he omitted to do. It was stated that since the accident a colour-light home signal had been installed at Balby Junction, and track-circuiting completed between that signal and the Bridge Junction home signal (where the 1.10 p.m. was standing at the time of the accident).

Machine Tool Exhibition 1948.—It is announced by the Machine Tool Trades Association, Victoria House, Southampton Row, London, W.C.1, that the next machine tool and engineering exhibition will be held at Olympia, London, from August 26 to September 11, 1948. This important exhibition will provide the largest display of machine tools, woodworking machine equipment, etc., ever staged in this country, and it will be international in scope, foreign exhibits being shown side by side with British equipment. All three halls at Olympia have been booked and there will be more than 250,000 sq. ft. of stand space.

C.P.R. Equipment Orders.—It is announced by the Canadian Pacific Railway from Montreal that contracts amounting to over $16 million have been let for the construction of locomotives and wagons. The Montreal Locomotive Company will build 10 mixed-traffic Pacific and 12 Mikado-type locomotives, costing $3,600,000; and the Canadian Locomotive Company is to supply 30 light Pacific locomotives at a cost of $3,800,000. Rolling stock ordered from the Steel Company of Canada includes 750 box wagons, 175 refrigerator wagons, and 100 covered hopper wagons, costing $6,750,000. A further 250 hopper wagons, at a cost of $1,300,000, has been ordered from the Eastern Car Company. Rolling stock from the Canadian Car & Foundry Company consists of 10 mail and parcel vans, and 10 express luggage vans, costing $1 million. It is announced also that orders will be placed soon for 11 additional locomotives and 500 wagons. A statement by Mr. W. M. Neal, Chairman and President of the C.P.R., dealing with the company's heavy expenditure programme, was reported in the Overseas columns of our September 19 issue.

Forthcoming Meetings

September 29 (*Mon.*).—Stephenson Locomotive Society, a lantern lecture by Mr. George Dow, Press Relations Officer, L.N.E.R., on "Public Relations on Railways," 6.30 p.m., at the Society's Headquarters, 32, Russell Road, London, W.14.

October 7 (*Tue.*).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. 6 p.m. "High Speed C.I. Engines." Discussion on some notes on the design, development, and production of high-speed compression-ignition engines, by Mr. S. Markland, O.B.E., M.I.Mech.E., and Mr. N. Tattersall, M.I.Mech.E.

October 9 (*Thu.*).—The Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. 5.30 p.m. "Bogies and Pony Trucks: their Behaviour on the Locomotive and the Track," by Mr. J. C. Loach, Associate Member.

Railway Stock Market

Apart from selective demand for shares of companies which stand to benefit from export trade expansion, business in stock markets has dwindled and generally no very definite tendency has developed. In most sections moderate buying or selling again was inclined to result in sharp movements in individual securities. British Funds were affected by Mr. Dalton's forecast that further sales of gold to the United States may prove necessary, and generally the fear of an autumn Budget hangs over markets.

In some respects an autumn Budget would be welcomed in the City, because it is felt that with the supply of goods falling off in the home market and the spending power of the public remaining around its present high level, there are all the elements making for serious inflation. It is felt that checks on inflation will prove necessary even if it were decided that an autumn Budget could be avoided. On the other hand, the City is hopeful that the Government will not bring in any very complicated scheme to secure limitation of profits or dividends. In the first place, if the crisis measures succeed, companies engaged mainly in the home market seem likely to earn lower profits for the time being.

It is true, of course, that if export targets are reached numerous companies should be able to earn substantially larger profits, and this might very well arise from priorities in respect of materials and labour. Therefore, it is realised that some form of profit or dividend limitation for these concerns might be proposed. On the other hand, the whole question of restrictions of this kind is complicated and involved, and as was shown by E.P.T., can result in many hardships and anomalies besides acting as a check to enterprise. It is recognised that if export targets were achieved, many rubber manufacturers, machinery makers and textile companies would in time earn substantially bigger profits. Share prices have in most instances moved higher, but because of uncertainty whether dividend limitation will be proposed by the Government, the rise in values has been relatively moderate. Iron and steel shares recorded further improvement.

With British Funds tending to lose further ground and now on a 3 per cent. yield basis, it might have been expected that home railway stocks would have attracted increased attention in view of their merits as a hedge against the possibility of any further decline in gilt-edged. Many brokers report that their clients, while recognising the obvious merits of home railway stocks from the point of view of their rise in due course to their take-over levels, are disinclined to place money in stocks of companies which are on the verge of nationalisation. The impression prevails in some quarters that, despite the stipulations of the Transport Act, the interest rate of British Transport stock might prove to be only 2½ per cent., the fear being that it might be possible for official support to result in a strong rally in British Funds just before the exchange of home rails into British Transport stock. It might perhaps be possible by this means to return British Funds *temporarily* to a 2½ per cent. yield basis, but it is fantastic to assume that artificial support for British Funds might be decided on with the object of treating home railway stockholders unfairly. Before long the scope for appreciation in home railway stocks will no doubt attract attention. The impression is that once sustained buying develops, prices will rise rapidly, and that they may in fact approximate to the take-over levels some while before the actual exchange into British Transport stock. Recent moderate declines in home railway stock have been inclined to bring in buyers, and a number of fractional rallies have been recorded. Great Western guaranteed stock strengthening to 124 and Southern 5 per cent. preference to 111.

Encouraging views as to the outcome of the U.K.-Argentine currency talks have been reflected by further confidence that the railway agreement will be duly ratified. Consequently Argentine rail stocks have continued their rally, buyers being attracted by the fact that current market prices are still well below the share-out levels. The 4 per cent. debenture stocks of the leading companies, which a short while back had fallen to 90, or 10 points below the share-out levels, are now around 93½.

Anglo-Argentine Tramway debentures were higher on balance, but fluctuated sharply, awaiting further news from Buenos Aires. Central Uruguay ordinary stock at 21 lost part of an earlier rise on "take-over" talk, and the second debentures were 64. Brazil railway stocks were firmer under the lead of San Paulo. Antofagasta preference was good with a rise to 56, although the ordinary stock, after an earlier gain, eased to 11¾. United of Havana 1906 debentures firmed up to 19½. Mexican Railway 6 per cent. debentures have been firm at 78½. Canadian Pacific rose further to 18½ after news of higher export freight charges for Western Canadian grain.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1945/46	No. of Week	Aggregate traffics to date: Totals 1946/7	Aggregate traffics to date: Totals 1945/6	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1946	Prices: Lowest 1946	Prices: Sept. 23, 1947
				£	£		£	£	£				
South & Central America	Antofagasta	834	14.9.47	44,250	+ 2,780	37	1,529,890	1,199,730	+ 330,160	Ord. Stk.	11	10½	12
	Arg. N.E.	753	13.9.47	ps.327,200	– ps.6,600	11	ps.3,501,200	ps.3,458,700	+ ps. 42,500	,,	17	5	10
	Bolivar	174	Aug, 1947	$99,656	– $1,217	35	$872,836	$860,897	+ $11,939	6 p.c. Deb.	6½	5½	22½
	Brazil	—	—	—	—	—	—	—	—	Bonds	30	26	39½
	B.A. Pacific	2,771	13.9.47	ps.2,575,000	+ps.500,000	11	ps.26,975,000	ps.23,113,000	+ ps.3,862,000	Ord. Stk.	8½	5½	10
	B.A.G.S.	5,080	13.9.47	ps.3,291,000	–ps.215,000	11	ps.36,488,000	ps.35,754,000	+ ps.734,000	Ord. Stk.	16	10½	17
	B.A. Western	1,924	13.9.47	ps.1,449,000	+ps.242,000	11	ps.14,860,000	ps.13,139,000	+ ps.1,721,000	,,	19	9½	21
	Cent. Argentine	3,700	13.9.47	ps.3,366,300	+ps.274,800	11	ps.35,425,250	ps.34,190,751	+ ps.1,234,499	,,	10½	7½	17
	Do.	—	—	—	—	—	—	—	—	Dfd.	6	4½	11½
	Cent. Uruguay	970	14.9.47	26,211	– 9,124	11	346,973	379,489	– 32,516	Ord. Stk.	8½	3½	21½
	Costa Rica	262	June, 1947	34,128	+ 8,679	52	356,876	344,680	+ 12,196	Stk.	15	12	10
	Dorada	70	Aug, 1947	31,100	– 4,300	35	243,900	256,775	– 12,875	1 Mt Deb.	102½	99½	108
	Entre Rios	808	13.9.47	ps.482,800	+ps.73,900	11	ps.4,815,500	ps.4,645,000	+ ps.170,500	Ord. Stk.	9	5½	10
	G.W. of Brazil	1,030	13.9.47	27,900	+ 600	37	1,150,300	1,005,200	+ 145,100	Ord. Stk.	26/6	20/–	3½
	Inter. Ctl. Amer.	794	July, 1947	$1,059,747	+ $245,025	30	$7,963,011	$6,472,238	+ $1,490,773	—	—	—	—
	La Guaira	22½	Aug., 1947	$97,074	– $25,111	35	$882,233	$944,426	– $62,193	5 p.c. Deb.	70	58	83½
	Leopoldina	1,918	13.9.47	71,736	– 2,159	37	2,437,831	2,170,095	+ 267,736	Ord. Stk.	5	3½	14
	Mexican	483	31.5.47	ps.1,464,000	+ps.459,100	22	ps.7,706,200	ps.13,441,600	+ ps.5,220,000	Ord. Stk.	1¾	¾	1
	Midland Uruguay	319	Aug, 1947	16,601	– 4,384	9	32,448	39,969	– 7,421	—	—	—	—
	Nitrate	382	15.9.47	9,112	+ 3,193	37	164,312	150,701	+ 13,611	Ord. Sh.	83/9	71/3	62/6
	N.W. of Uruguay	113	Aug, 1947	3,791	– 3,087	9	7,778	11,581	– 3,805	—	—	—	—
	Paraguay Cent.	274	12.9.47*	₲291,951	–₲145,715	10	₲494,800	₲665,710	– ₲170,910	Pr.Li.Stk.	78½	60	44½
	Peru Corp.	1,059	Aug., 1947	169,493	– 289	9	332,183	320,684	+ 11,499	Pref.	16½	8¾	10
	Salvador	100	June, 1947	c91,000	+ c11,000	52	c1,699,000	c1,597,450	+ c101,550	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	119½	52½	148
	Taltal	156	Aug, 1947	5,420	+ 2,165	9	11,005	7,050	+ 3,955	Ord. Sh.	22/6	15/3	18/–
	United of Havana	1,301	6.9.47	57,974	+ 12,420	10	597,603	541,437	+ 56,166	Ord. Stk.	2	1¼	2
	Uruguay Northern	73	Aug, 1947	1,111	– 365	9	16,700	19,939	– 3,239	—	—	—	—
Canada	Canadian National	23,535	July, 1947	9,507,250	+ 896,000	30	62,567,500	55,150,500	+ 7,417,000	—	—	—	—
	Canadian Pacific	17,037	14.9.47	1,601,750	+ 47,000	37	54,361,750	50,112,750	+ 4,249,000	Ord. Stk.	25½	16¼	18xd
Various	Barsi Light†	202	Aug, 1947	24,247	+ 4,642	22	138,577	129,315	+ 9,262	Ord. Stk.	123½	111	110½
	Beira	204	June, 1947	99,433	+ 20,525	37	828,897	676,166	+ 152,731	—	—	—	—
	Egyptian Delta	607	20.8.47	16,791	– 887	15	179,814	181,642	– 1,728	Prf. Sh.	9¼	5	6
	Manila	—	—	—	—	—	—	—	—	B. Deb.	75	60	71½
	Mid. of W. Australia	277	July, 1947	17,688	+ 3,193	4	17,688	14,495	+ 3,193	Inc. Deb.	85	70	74½
	Nigeria	1,900	July, 1947	296,272	– 73,139	17	1,339,004	1,490,315	– 151,311	—	—	—	—
	Rhodesia	2,445	June, 1947	569,518	+ 35,926	37	4,978,485	4,600,382	+ 378,103	—	—	—	—
	South African	13,323	23.8.47	1,232,957	+ 143,665	21	25,677,699	22,773,584	+ 2,904,115	—	—	—	—
	Victoria	4,774	May, 1947	989,352	– 361,928	48	—	—	—	—	—	—	—

* Seven-week period. † Receipts are calculated @ 1s. 6d. to the rupee